University of Alberta Library
0 1620 3471461 6

ALBERTA NATURALIST

Volume 14, Number 4. December 1984.

White-tailed Ptarmigan female in early spring moult. Wilcox Pass, Jasper National Park, 21 May, 1981. See article pages 121-125.

Photo: Jim R. Salt

ALBERTA NATURALIST

Volume 14, Number 4. December 1984.

Published quarterly by the Federation of Alberta Naturalists
Box 1472, Edmonton, Alberta T5J 2N5

CONTENTS

Some Notes on White-tailed Ptarmigan in the Alberta Rockies. *Jim R. Salt* 121

Professor William Rowan – Ornithologist and Artist. *E. Otto Hohn* 126

The 1984 Spring Bird Migration: Elk Island National Park. *Kevin J. Van Tighem and Gordon R. Burns* 131

FAN News, Notes and News, Announcements, Club News 135-142

Hunting by Great Horned Owls in the Alpine Zone of the Rockies. *Jim R. Salt* 143

Waterfowl Surveys on the Prairies. *Kent Brace* 144

Nesting of Evening Grosbeaks near Edmonton. *Lois Fenna* 145

Tree-Climbing Columbian Ground Squirrel. *Joy and Cam Finlay* 146

Birds Recorded at a Jasper Feeding Station. *Carol West* 146

Concerned Note from *Edgar T. Jones* 147

Alberta Christmas Bird Counts 1983 Addendum 147

The Writings of *Fred Schutz* 148

Naturalists Bookshelf.
Harvesting the Northern Wild. *Bob Longworth* 150
A Checklist of the Rare Vascular Plants in Alberta. *Ian G.W. Corns* 152
Cranes of the World. *J. Paul Goossen* 153

Recent Publications on the Natural History of Alberta. *Compiled by David M. Ealey and Martin K. McNicholl* 154

The Alberta Naturalist is published quarterly by The Federation of Alberta Naturalists. Special issues may be published from time to time. Any material printed for the first time in the AN may be reproduced without permission; credit lines will be appreciated and the editor will appreciate copies of the reprint. All opinions expressed are those of the authors concerned and, except where stated, do not represent official F.A.N. policy.

DEADLINES for submission of material for regular issues are: February 1, May 1, August 1 and November 1. All maps and charts should be submitted on 8½" x 11" (or 7" x 8½") white bond. Please indicate in light pencil any data which are to be typed on charts, maps, etc. Black and white photographs or slides, as well as line drawings, are most welcomed. Please include your complete mailing address with submissions of material.

DEADLINES for FAN project reports are: *Alberta Christmas Bird Counts*, January 30, Andrew Slater, 22 Hillgrove Dr. S.W., Calgary, AB. T2V 3L6; *May Species Count - Plants*, July 15, J. Derek Johnson, Northern Forest Research Centre, 5320 - 122 St., Edmonton, AB. T6H 3S5; *May Species Count - Birds and Mammals*, July 15, Al Wiseley, 202 - 635 - 56 Ave. S.W., Calgary, AB. T2V 0G9. Compiler cooperation is greatly appreciated.

Editor: Derek Johnson,
7109 - 106 St., Edmonton, Alberta. T6E 4V5.
Telephones: 436-8231 home, 435-7306 work.
Assistant Editor: David M. Ealey
Photo Editor: Dick Dekker

Typesetting: Typeplus Typographers Ltd.
Graphic design and assembly: Dick Dekker
Printing: Europe Offset Ltd.

ISSN 0318-5440. Postage paid at Edmonton, Alberta under Second Class Mail Registration No. 3604.

Ptarmigan habitat at Wilcox Pass, Jasper National Park. Photo: Jim R. Salt

Some Notes on White-tailed Ptarmigan in the Alberta Rockies

Jim R. Salt

The White-tailed Ptarmigan, *Lagopus leucurus,* has been well studied in the western U.S., but in western Canada the only reported work is that of Herzog (1977, 1980) on ptarmigan in the Highwood Pass (east Kananaskis) region. Herzog's banding and observations were of much shorter duration than those of some Montana studies, but they are significant nevertheless, and agree closely in many respects with the work in the northwestern U.S.

My own studies of White-tailed Ptarmigan cover a period of more than 35 years (1946-1984), and consist of both casual observations and some intensive work involving banding.

Methods

The locations and dates of my studies are: Cardinal Divide (head, McLeod River), 1978-82; Wilcox Pass/Sunwapta Pass, 1954-57, 1964-66, 1978-84; Kananaskis, 1964-66, 1976-81. Locations of casual or occasional records are noted in the text; I visited many of these only from June to October. However the records of intensive work (Wilcox Pass, Kananaskis) and some random observations derive from the winter (November through April).

At Wilcox Pass (Columbia Icefields region) in 1977 I banded a total of 17 adult ptarmigan (7 females, 8 resident males and 2 transient males), beginning in late June when mating was already under way. About 90% of all adult breeding ptarmigan on the study area were banded, according to repeated visual survey. The altitudinal range was from 1940 m (below treeline) to above 3015 m. However, all banding took place between 2280 m and 2490 m. A much larger area of Wilcox and Sunwapta Passes was observed repeatedly and nest-sites monitored. The Cardinal Divide study range is considerably larger than that of Wilcox Pass, but its altitudinal relief is only about 600 m (1910 - 2500 m).

Captures were made with a fish dip-net (Choate 1963) with an improvised handle about 2 m long. The dip-net required more time and effort for capture than the more usual noose-pole technique (Zwickel and Bendell 1967), but the rate of injury/mortality by the net method was nil. Dip-nets were tried at Cardinal Divide without success; a heavy mist-net, 13 m long x 2 m high, was only slightly more productive; only 3 adult ptarmigan (1979-83) were banded.

At all banding sites, birds were marked with coloured plastic expansion (coil-type) bands; a "key" band on the left leg indicated the specific locality of initial capture; two bands on the right leg identified individual birds of each "key" group.

Environmental Preference, Range, and Movements

The altitudinal range of White-tailed Ptarmigan may vary both seasonally and with the sex or age of individuals. The limits in the Alberta Rockies are normally from about 1600 m to above 3075 m. The species was very erratic in habit and movements, and few generalities are possible. It may be noted, however, that breeding occurs only at middle elevations; I have no records of White-tailed Ptarmigan from either high or low extremes of elevation during nesting (late June-early August) prior to the emergence of chicks.

After losing their white winter plumage, ptarmigan become much more visible on snow.

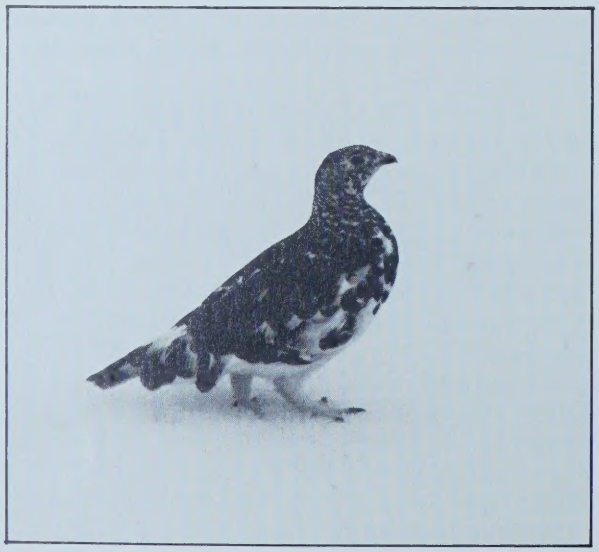


Photo: Jim R. Salt

White-tailed Ptarmigan, according to Herzog (1977) for the Alberta Rockies and Choate (1963) for Montana, prefer low mat (interwoven) vegetation. Choate remarks that they usually avoid shrub "taller than themselves". My own studies agree with these generalities for the breeding season, but I noted many exceptions at other times. In autumn and particularly in late winter, birds may take refuge around conifers, both at treeline (krummholz), and in parkland edges well below treeline.

In summary, I have recorded ptarmigan or their sign high on rock peaks above any mat vegatation; on the lower tongues or at the edges of glaciers (Athabasca and Saskatchewan Glaciers; Kananaskis region); and in open forest or parkland situations at middle elevations. Most of my records from both high and low elevations (above ca. 2600 m and below ca. 2100 m) represent adults in late winter and early spring. There are a few anomalies, however; in the Cardinal Divide region ptarmigan descended into the upper, parkland forest margin even in late summer, when young were ⅔ adult size or larger. On some occasions they flew up to perch on branches of fir when disturbed, and I once noted a single sentinel bird in a tree while others fed on the ground (July 1979).

Several observable factors affected the seasonal movement of Alberta ptarmigan. Most higher open elevations receive or retain little snowfall from November through February, and large areas of sedge/grass, *Dryas*/herb mat, or low willow are swept clean or thinly crusted by winds. Snow accumulation here often depends upon storms from March through May. These factors appear to affect the movements or phenology of wintering ptarmigan generally, for in early to mid-winter exposed food plants are often more available above treeline. But because the birds prefer to pass the colder weather and storms in "forms" in the snow, they require deep snow drifts nearby for shelter. The irregular topography of prime ptarmigan range provides these drifts. Herzog (1977) has remarked on the importance of creek gorges to ptarmigan in summer. In winter the gorges trap deep snow drifts on their lee slopes, providing excellent cover.

In all localities studied, I found a general pattern of movement downward out of the breeding sites by late March or early April (sometimes, but not necessarily, in direct response to greater

UNIVERSITY LIBRARY
UNIVERSITY OF ALBERTA

snow accumulation higher up). The timing of winter movements is erratic, however. In winter 1977-78, for example, two banded adults remained throughout the winter and one, a female, was noted on numerous occasions within 150 m of her 1977 nest-site.

When birds did move they usually travelled in small groups. Large flocks of ptarmigan are rare in the Alberta Rockies. This is due in part to small populations. One large flock, of 33-35 birds, was recorded on the lower north slopes of Mt. Athabasca (Sunwapta Pass, mid-March 1978). Their location was less than 2 km from the Wilcox Pass banding site, across Sunwapta Pass, but there were no banded birds in the flock.

The wandering of male ptarmigan away from the nest localities was the most predictable movement each year. In all observed cases, males left not later than the last week of incubation (late June to mid-July), and were gone from the territories — and usually from the elevation of nest-sites — by the time young were ready to feed with females. Most males in fact left during the first week of incubation, moving gradually; one male in Wilcox Pass spent the incubation term standing sentinel on a promontory ca. 20-30 m from the nest, and crowed like a small rooster to attract attention from the female. This protective behaviour was observed in about 20% of males. After their departure, two or three males might band together; some went alone to higher elevations. And one or two could again be found (Wilcox Pass, Parker's Ridge) within a few hundred metres of the breeding territory in October, when the females and young had wandered to other parts of the range. In winter, males might be found at very high elevations on rock peaks, and most unusual records at this season are of adult males.

In choice breeding territory, females and young remained on a small feeding range for prolonged periods. A few females even stayed a short distance from choice nest-sites long into the winter (Dec., Feb.). In preferred breeding areas, young too remained until late winter, but the early departure of young (and often, of females as well) seemed to characterize poorer breeding areas, where families seldom wintered together, dispersing in September or October.

Researchers in the U.S. have commented upon the "export" of young ptarmigan from rich breeding areas to distant range for their own breeding activities. I recorded a relatively high proportion of returns (60%) in Wilcox Pass the summer following banding; this seems to support the notion that the young of "producing" areas do not remain in their natal localities to breed.

Breeding, Productivity, and Predation

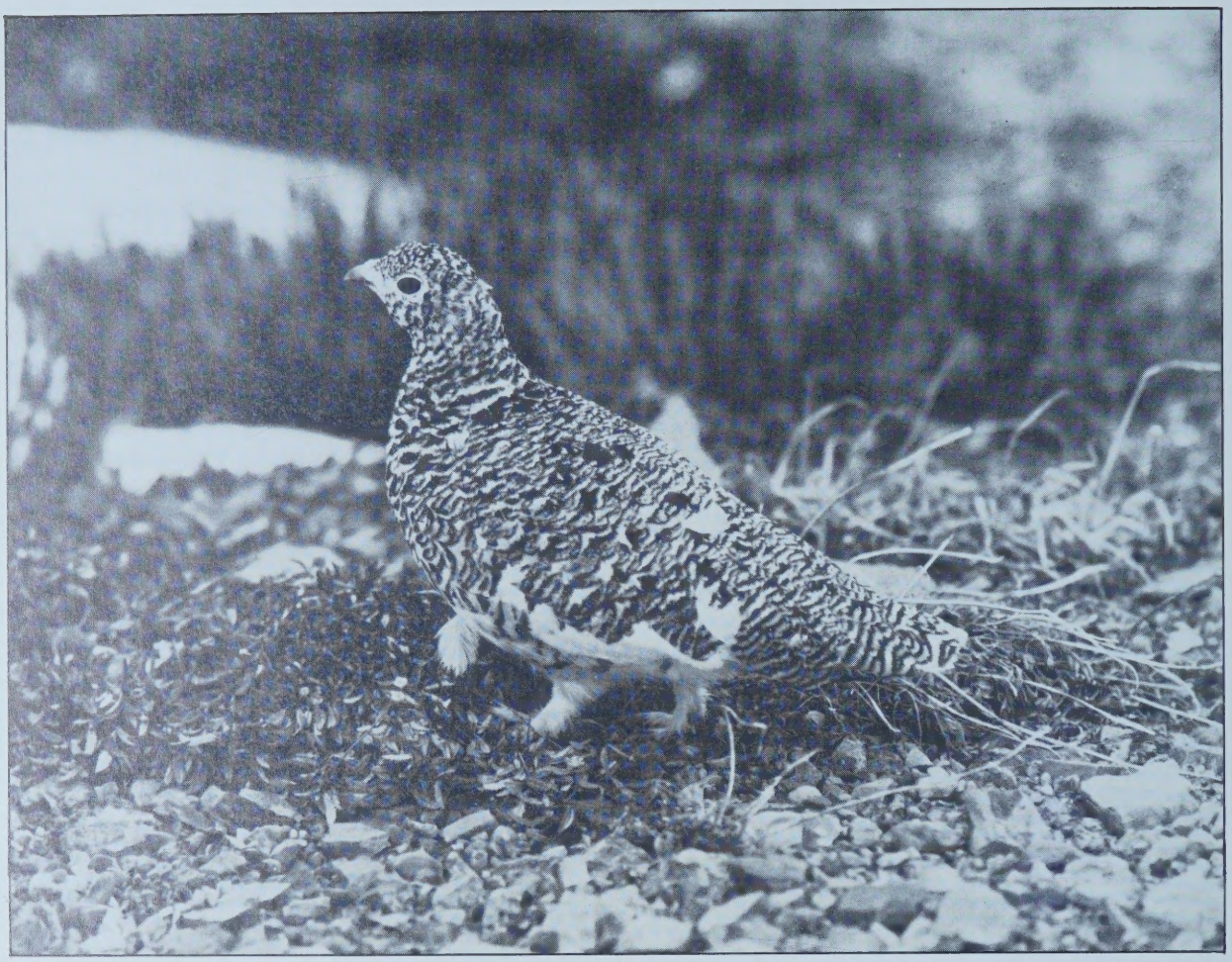
Adult ptarmigan returned to nest-sites in Wilcox Pass as early as 1 April, when snow was still deep on part of their range, and as late as June. Most pairs roamed in the vicinity of the site throughout May, but little territorial behaviour could be noted this early. In late May individual males or females might begin to show hostility or alarm at intruders. Either the male or the female might arrive first on the territory prior to mating; defensive territoriality was more common in males.

Ptarmigan appear to prefer similar breeding-territory in Alberta and in the northwestern U.S. (Choate 1960; Braun 1971; Braun and Rogers 1971). Herzog (1977) has described the topography preferred by females on his Highwood study area: wet or damp areas, meadows (of low sparse sedge/grass), or the vicinity of a stream were favoured. The nests are always situated on dry ground, however. Slope is significant: very few nest-sites are situated on slopes steeper than about 12 degrees. Broken rock (scree or decayed bedrock) accounts for at least 40% of ground-cover around the nest. The exposure of the nest site is significant to breeding. Highest nest concentration and earliest hatch dates were those on southerly slopes.

In many cases, certain lichens - particularly *Cetraria* and *Cladonia* - are a significant component of the nest and are used by the female to cover the eggs when she leaves. A detailed list of plant species found at the nest-site would include 3 or 4 lichen genera (*Cetraria, Cladonia, Stereocaulon* and *Peltigera*); and vascular plants common in subalpine mat (*Cassiope, Phyllodoce, Salix, Dryas, Arctostaphylos, Vaccinium, Erigeron, Carex*, and some graminoids).

In preferred breeding environment nests were occasionally found within 50 m of each other. Adequate nesting-range is often fragmentary, so neighbouring nests may be 500-1200 m apart even in good breeding habitat.

The feeding-sites used for brood-rearing consisted of communities with a much higher



White-tailed Ptarmigan in summer plumage. A brooding female is almost impossible to detect. Photo: Jim R. Salt

proportion of common flowering plants (*Ranunculus, Solidago, Erigeron, Claytonia, Carex*), or *Dryas/Salix nivalis* mat with *Erigeron*, or *Cassiope* mat with *Anemone*, or stream and pond-sides with Sheep Sorrel (*Oxyria digyna*), Leather-leaved Saxifrage (*Leptarrhena pyrolifolia*), etc. In prime breeding situations these communities were generally available near the nest-localities.

Broods in Wilcox Pass and vicinity were from 3 to 5 chicks at hatching (31 broods), and in Kananaskis, from 3-8 (9 broods). In Alberta generally, I have recorded clutches of 3-8 eggs, but broods of 8 chicks are rare. I have one record of the adoption of 3 young chicks by a female with 3 well-grown young (Nigel Pass, July 1982).

Observed mortality in young was generally very low between hatching and about 4/5 adult size. Two dead chicks were found after heavy summer snow storms in Wilcox Pass (1977, 1978). In 1978 one brood declined from four chicks to one (12-28 July) following prolonged bad weather. A Golden Eagle (*Aquila chrysaetos*) took one adult female within 6 days of banding. Two other kills, of unmarked birds, were noted; one by an avian predator, and one probably by Marten (*Martes americana*) or Short-tailed Weasel (*Mustela erminea*). In late April 1983 a long-dead adult, virtually intact, was found in Wilcox Pass, suggesting winter mortality, possibly while in a form in snow.

From my records on Wilcox Pass there is one sighting of a banded bird (female) in 1981, 4 years after marking. Since the marked birds were all adult, this individual was at least 5 years of age when last seen. And since it occupied one of the preferred breeding sites, this female was probably even older. Choate (1963) records a male at least 6 years of age in Glacier Park, Montana.

Six of 17 banded birds from 1977 returned to breed on the study site in 1978; only 2 were noted in 1979, and one each in 1980 and 1981. The remaining nest territories on the site were occupied by unbanded individuals, in 1978-81. However, in 1982-84, some of these nest localities were unoccupied, and in 1984 only one brood was observed on this part of Wilcox Pass. A similar vacillation in numbers on preferred breeding range was noted in the Highwood area and on the Bald and Opal Hills (Maligne Lake region).

Feeding and Foods

I have no detailed analysis of food plants, like that of West and Meng (1966) for Willow Ptarmigan in Alaska. However, observation in both the Sunwapta Pass region and Kananaskis indicated that a few plant groups — willow (*Salix nivalis*); common sedges (*Carex*); and heaths (*Cassiope*); and some common alpine wildflowers (a buttercup, *Ranunculus eschscholtzii*, fleabanes, *Erigeron*) — and a variety of common insects, were most important to the Alberta ptarmigan. The seep and stream-side species mentioned with regard to nest territories are of particular significance. Choate (1963) in Montana noted ptarmigan taking mosses. I observed the birds at mats of juniper moss, *Polytrichum juniperinum*, in the Highwood region, but was unable to confirm that they were actually feeding on this plant.

Banded females in Wilcox Pass led young immediately toward prime feeding sites, which consisted of damp areas such as small seeps, pond or stream sides, or vegetation mat in proximity to late snow banks. Territoriality was still noticeable among females, but in prime areas, two broods (3, 4) were often noted feeding as near as 50 m apart for a period of two weeks or more. The females took primarily plant foods, while the young fed on a high proportion of small insects (*Diptera*, etc.). In Wilcox Pass, a community with dense, low willow (*Salix barrattiana*) at about 2400 m elevation was a favoured feeding area, and young were noted to take a few small snails as well as the insects.

Ptarmigan in less favourable feeding sites wandered greatly from the time of hatching through August, and might never re-appear on natal territories. There are a few records of young families at high elevations on summit ridges (Canmore, 1947). Young chicks of these groups often took a lower proportion of insects (eastern slope locations).

Adult and older immature White-tailed Ptarmigan fed primarily upon buds and seeds. As Weeden (1967) and May and Braun (1972) have noted, the food species vary greatly with season. The selection is more limited in winter (October-May), when low willow (*Salix*), Cinquefoil (*Potentilla*), Buffalo-Berry (*Shepherdia*), and Rose (*Rosa*), play a vital part in the diet in western Alberta.

Acknowledgments

During recent studies I have been greatly assisted by the following individuals, who contributed their observations, or assisted me in the field and during analysis of data: R. Belland, A. Bieber, B. Bondar, J. Boone, E. Gundersen, P. Herzog, R. Jaeger, J. Maitland, S. Maitland, J. Patterson, J. Ridley, D. Sept. S. Servos, C. Roth West, S. Wolff, F. Zwickel. I owe particular thanks to W.R. Salt for access to his diaries. The marking of ptarmigan in Wilcox Pass was carried out in 1977 while I did faunal studies for the Canadian Wildlife Service; I am grateful to D. Karasiuk for permission to use the results of that work. I thank M.K. McNicholl for reviewing and making suggestions on an earlier draft of this report; and I am particularly indebted to David Ealey for considerable editorial assistance on the present revision.

Literature Cited

Braun, C.E. 1971. Habitat requirements of Colorado White-tailed Ptarmigan. Proc. Western Assoc. State Game and Fish Commissioners 51: 284.

Braun, C.E. and G.E. Rogers. 1971. The White-tailed Ptarmigan in Colorado. Colorado Div. Game, Fish and Parks, Tech. Pub. 27. 80 pp.

Choate, T.S. 1960. Observations on the reproductive activities of White-tailed Ptarmigan (*Lagopus leucurus*) in Glacier Park, Montana, M.A. Thesis, Montana State U., Missoula. 113 pp.

Choate, T.S. 1963. Habitat and population dynamics of White-tailed Ptarmigan in Montana. Jour. Wildl. Mgt. 27(4): 684.

Herzog, P.W. 1977. Summer habitat use by White-tailed Ptarmigan in southwestern Alberta. Can. Field-Nat. 91: 367-371.

Herzog, P.W. 1980. Winter habitat use by White-tailed Ptarmigan in southwestern Alberta. Can. Field-Nat. 94: 159-162.

May, T.A. and C.E. Braun. 1972. Seasonal foods of adult White-tailed Ptarmigan in Colorado. Jour. Wildl. Mgt. 36(4): 1180.

Weeden, R.B. 1967. Seasonal and geographic variation in the foods of adult White-tailed Ptarmigan. Condor 69(3): 303.

West, G.C. and M.S. Meng. 1966. Nutrition of Willow Ptarmigan in northern Alaska. Auk 83(4): 603.

Zwickel, F.C. and J.F. Bendell. 1967. A snare for capturing Blue Grouse. Jour. Wildl. Mgt. 31: 202.

Author's Address:
8731 - 117 Street, Edmonton, Alberta T6G 1R6

Professor William Rowan
Ornithologist and Artist

E. Otto Hohn

Professor William Rowan, 1891-1957.

William Rowan is the one Alberta ornithologist whose research earned him a truly international reputation. He was born in 1891 of an Irish father and a Danish mother in a small seventeenth century castle in a suburb of the city of Basel, Switzerland. His parents had probably rented the castle or perhaps an apartment within it. When a generation later I grew up in the same city this castle had become a restaurant.

The Rowan family soon moved to England where Rowan grew up. Sometime before World War I he came to Alberta where he worked as a ranch hand and cowboy. The impressions he received during this stay presumably motivated him to accept a teaching position in western Canada at a later stage in his career. Back in England a period of army service interrupted his higher education, but he was able to resume it on his discharge. He obtained his bachelor's degree in Zoology from University College, London, in 1917. In 1919 he lectured in this subject at the University of Manitoba. A year later he joined the Biology Department of the University of Alberta, then the only university in the province. In 1921 he became the sole member of the newly created Department of Zoology which he developed, and as its personnel expanded, headed until his retirement in 1956. He was married and had five children.

Shortly after his arrival in Edmonton a local taxidermist recommended Beaverhill Lake to him as a place where interesting birds, particularly waders, were to be found, and Rowan (often with others) observed and collected at Beaverhill Lake for many years. Robert Lister's book "The birds and birders of Beaverhill Lake", contains long excerpts from Rowan's field diaries (which are kept in the library of the University of Alberta) about his work in that locality. It resulted in a series of articles entitled "Notes on Alberta Waders included in the British List" dealing with American species which had been recorded as vagrants in Britain and had thus "made" the British list. He illustrated these articles with a number of excellent pencil drawings. Rowan was a skillful artist. When in his twenties he discovered that he was colour blind he gave up painting in favour of work in black and white. He has left fine drawings of birds and mammals as well as some sketches of wilderness landscapes. An outstanding drawing by him of whooping cranes in flight appeared on an air mail stamp in the 1930's. He also sculpted models of animals for the collection of his department at the university and produced life-like painted plaster models of native mammals which were offered for sale at Jasper where he rented a summer cottage for a number of years.

Rowan became intrigued by the problem of the origin, in the individual bird, of the migrating urge. From the observation that spring migrants tend to arrive at much the same date year after year regardless of weather conditions he drew the logical conclusion that the urge to migrate must be released by some regularly repeated change in the environment. Seasonal changes in daylength meet this requirement. In 1924, to test his theory, Rowan subjected Dark-eyed Juncos trapped in the fall to artificially produced "long days" using ordinary electric light bulbs. By mid-

Pencil drawing of Dark-eyed Junco by William Rowan, who used the species in his experiments on photostimulation - the effect of light on living organisms.

winter his experimental birds had started to sing and autopsies showed that in spite of the cold their sex glands had developed almost to the breeding condition. On the other hand, his control birds, kept in a cage exposed to the natural winter daylight, did not sing and their sex glands were in the normal inactive winter condition. This original finding, that exposure to longer periods of light is the primary stimulus which brings birds into breeding condition, was Rowan's great discovery, but in itself it has no bearing on migratory behavior. The phenomenon he described has since been amply confirmed in a number of other bird species and in certain seasonally-breeding mammals. It opened the whole field of photostimulation - the effect of light on living organisms. Rowan believed that light not only brought his juncos into breeding condition, but had simultaneously induced their urge to migrate because his control juncos on release stayed in the area where they were liberated while most of the light-treated birds disappeared presumably, he believed, on a premature spring migration.

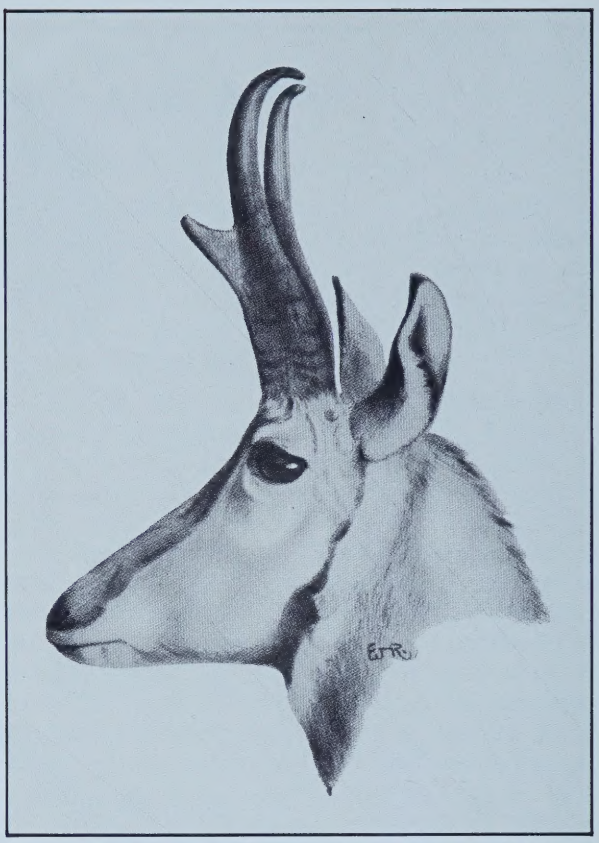
These experiments were carried out during the depression years when research grants were far more difficult to secure than at present and university staff were even subjected to a cut in salary. When Rowan attempted to obtain a grant from the University of Alberta to develop his

work further, the then president told him that he did not consider "work on dicky birds to be Science." Rowan obtained grants from the Royal Society of London (England) and from the United States.

This enabled him to carry our further experiments which would provide information on the movements, after their release, of light-treated and control birds. This time Rowan used crows, painting part of the plumage of the experimental birds, which he expected to move northward after release, with one colour, while the control crows were painted with another colour. Crows are very smart birds and catching 500 of them in 1931 was no mean task. Lister who was Rowan's technician and field assistant, describes the ludicrous incidents which occurred during some of the crow-catching ventures in his book. An intensive publicity campaign, which Rowan evidently enjoyed, prepared the public to look out for marked crows after their release. The sex glands of the crows exposed to the longer periods of light responded like those of the juncos, but results of the migration aspect of the experiment were not conclusive. Unfortunately the area north of Edmonton is rather sparsely populated so that only a few reports could be expected from there even if, as Rowan expected, a number of experimental crows went north. There were a few, but only a few, sightings of treated crows north of Edmonton, while no control birds were seen in that area.

Therefore in the following year Rowan and Lister were catching crows once more. This time after exposure of the experimental birds to artificial long days and of the control birds to the shortening natural days of fall and early winter, the crows were to be shipped to Medicine Hat and released there. From there northward-bound birds would pass through a few hundred miles of well-settled country where the chances of their being reported were good. Unfortunately the plane carrying the crows was forced down at a point somewhat less than halfway to Medicine Hat and the crows were released there. Once more the results were suggestive, but not conclusive; only a few experimental birds were reported from north of the release point, a few of them had also moved southeastward, while all reported controls remained near the point of release or had moved to the south.

While Rowan believed that the hormones of the sex glands stimulate birds to migrate in spring he had to provide another explanation for the fall migration which occurs when days are getting shorter and their sex glands are in regression. One of his own experiments showed that crows deprived of their sex glands nevertheless performed fall migration. He therefore postulated that declining daylengths provided the environmental stimulus to the fall migration by reducing the secretion of sex hormones by possible effects on the pituitary gland and in fact "on the entire physiology of the animal."



Buck Pronghorn. Pencil drawing by William Rowan.

While fellow scientists confirmed Rowan's discovery that light activates sex gland development in birds, they were unable to confirm his theory that the migratory urge is linked to that phenomenon. Some showed that banded birds in which the sex glands had been removed were nevertheless able to perform a spring migration. The problem Rowan set out to solve has not yet received a definite answer, but experiments on certain native American sparrows implicate one of the hormones of the pituitary gland, rather than the sex hormones, with certain aspects of

the migratory state. Yet Rowan remained unconvinced by the many findings of others and even in his last years planned another large scale crow experiment which he hoped would yield incontrovertible evidence in support of his theory.

Another of Rowan's migration experiments of the thirties demonstrated that crows migrate in accordance with an inherent sense of direction. Alberta crows migrate to the southeast in the fall to winter in Oklahoma. Marked Alberta crows shipped 1265 km to the east and released in Manitoba were recovered southeast of the point of release, a direction which would have taken them to New York instead of their normal wintering grounds. The results of this experiment were in agreement with the findings of other researchers. A further satisfactory experiment of Rowan's on young crows which were not released in their home area until all wild crows had gone south, and which migrated in the normal direction, demonstrated that this sense of direction is inherited.

Chick of Greater Yellowlegs. Pencil drawing by William Rowan.

Rowan's interpretation of *how* long exposure to light stimulates avian sex glands also proved to be in conflict with the findings of other scientists. He put forward the theory that since light keeps birds awake and active it is this activity and not the light as such which activates these glands. Here he was wrong, for others showed that only light of certain wavelengths is effective, while light of shorter wavelengths, which still keeps birds awake, is not. Immobilisation of Mallard ducks in plaster casts which prevented "activity" in the sense of movements did not prevent activation of their sex glands by light. During a sabbatical leave in England Rowan sought support for his activity theory by comparing the late winter sex glands of Starlings which roost on buildings in central London where lights and traffic keep the birds awake for much of the night with those of birds collected from a country roost where their nights were undisturbed. In apparent confirmation of his theory the city birds showed activated sex glands much earlier than the country birds. However, a later investigation provided another explanation. Banding results showed that the city roosts hold Starlings which breed in Britain, while those which winter in country roosts breed in continental Europe and only winter in Britain. In the mild climate of the British Isles the species breeds weeks earlier than on the continent.

Nevertheless Rowan had made a fundamental discovery and the merit of his research was recognised by election to a fellowship of the Royal Society of Canada and later by the award of its Flarelle Medal.

Apart from field work at Beaverhill Lake Rowan also observed and photographed birds breeding in certain muskeg areas north of Edmonton. In this connection he described a new subspecies of the Short-billed Dowitcher which he named after the Alberta egg collector A. Henderson. This bird, which may be called an inland dowitcher, nests in the north of the Prairie Provinces and the southern Northwest Territories far from the other Canadian race of the species which breeds in northern Quebec. In recognition of Rowan's muskeg work another ornithologist named the Sandhill Crane subspecies which breeds in central Canada (including Alberta) in Rowan's honour.

Rowan's publications were a major factor in my decision to leave England in favour of a position at the University of Alberta in 1947.

When I met Rowan he was in his 57th year and nearly bald. He was below average height, sported a moustache and a small beard of the type named imperial (after Napolean III) and smoked cigarettes through a long holder. His office, where we had our first cup of coffee together, was unique. It was a large room in the base of the little turret which ornaments the roof of what is now the Dentistry-Pharmacy building of the university. It was reached by a spiral staircase from the top floor of the rest of the building. The walls were lined with an impressive collection of large, now rare, illustrated books like Phillip's "Ducks of the World" and "British Game Birds" by Millais. Rowan generally wore what struck me as a discontented expression, but this changed to one of pleasant geniality when he smiled. He told me that he was "through with birds", but though he may have been fed up with experimental bird research he still loved birds and later we made a number of enjoyable field trips to the wilderness areas in which he had formerly observed and collected. In his last years he switched his research interest to the ten year cycle which so prominently affects our snowshoe hares. He remained an avid bird hunter almost to his last days and as his companion on many shooting trips I can attest that he was a first class shot. He was still full of ideas for scientific work when in 1957, about a year after his retirement he died suddenly while alone in his home.

Professor Rowan was a good photographer. This picture shows a Merlin on the British moorlands, where this little falcon often nests on the ground.

This is not the place for a list of Rowan's publications (a selected bibliography of 37 items is provided by Salt (1958)), but mention should be made of his study on merlins done in England (Rowan 1921, 1922a,b,c), which is not listed by Salt, and to his two major publications on migration (Rowan 1931, 1946).

Literature Cited

Lister, R. 1979. The birds and birders of Beaverhill Lake. The Edmonton Bird Club, Edmonton. 264 pp.

Rowan, W. 1921. Observations on the breeding-habits of the Merlin. I. - General Environment. Brit. Birds 15(6): 122-129.

— 1922a. Observations on the breeding-habits of the Merlin. II. Incubation. Brit. Birds. 15(9): 194-202.

— 1922b. III. Rearing of the young. Brit. Birds 15(10): 222-231.

— 1922c. IV. The young. Brit. Birds 15(11): 246-253.

— 1926a. Notes on Alberta waders included in the British list. Part I Semipalmated and Killdeer Plovers. Brit. Birds 20(1): 2-10.

— 1926b. Part II. Golden and Grey Plovers. Brit. Birds 20(2): 34-42.

— 1926c. Part III. Turnstone, Bartram's Sandpiper, Sanderling, Knot and Dunlin. Brit. Birds. 20(4): 82-90.

— 1926d. Part IV. Sandpipers. Brit. Birds 20(6): 138-145.

— 1927a. Part V. Brit. Birds. 20(8): 186-192.

— 1927b. Part VI. Dowitcher and Spotted Sandpiper. Brit. Birds 20(9): 210-222.

— 1929. Notes on Alberta waders included on the British list. Part VII. Brit. Birds 23(1): 2-17.

— 1930. Notes on Alberta waders included on the British list. Part VIII. The nesting of the Greater Yellowshank. Brit. Birds 24(4): 90-93.

— 1931. The riddle of Migration. Williams and Wilkins, Baltimore. 151 pp.

— 1946. Experiments in bird migration. Trans. Roy. Soc. of Canada, Series 3, Section 5, Vol. 40:123-235.

Salt, W.R. 1958. In memoriam: William Rowan. Auk 75(4): 387-390.

Author's Address:
11511 - 78 Ave., Edmonton, Alberta T6G 0N4

The 1984 Spring Bird Migration: Elk Island National Park

Kevin J. Van Tighem and Gordon R. Burns

Parks Canada has sponsored a number of wildlife inventories in its Western Region national parks over the past decade as part of its Natural Resource Management Process. Major wildlife inventories recently completed for Parks Canada by the Canadian Wildlife Service include Banff and Jasper National Parks (Holroyd and Van Tighem 1983), Mount Revelstoke and Glacier National Parks (Van Tighem and Gyug 1984) and Kootenay National Park (Poll *et al.* 1984).

In Elk Island National Park east of Edmonton smaller-scale wildlife inventories are being conducted sequentially. A two-year mammal inventory was completed in March 1984 (Burns and Cool 1984). A two-year avifauna inventory is currently underway, scheduled for completion in 1986. These inventories have been conducted by the Canadian Wildlife Service in conjunction with the Elk Island Warden Service, with funding by Parks Canada.

As part of the avifauna inventory, the authors conducted a series of regular spring migration surveys in 1984 throughout the park to measure the timing and magnitude of spring bird migration.

Methods

The migration survey was modified from the standard Breeding Bird Survey which is conducted across North American each year under the sponsorship of the Canadian Wildlife Service and U.S. Fish and Wildlife Service (Erskine 1980). The survey procedure was also similar to that used in the mountain national park inventories cited above.

Fifty roadside stops were selected at an average spacing of 0.8 km. Locations for stops were selected such that the full range of vegetation types represented in the park were sampled. The survey route began on the park boundary road adjacent to the northwest arm of Astotin Lake, and ran north and then east to the north park entrance, then south along the parkway to Highway 16, and south to the Isolation Area warden station.

The route was surveyed approximately twice weekly from 3 April to 30 May 1984. Each survey began between 0.25 and 0.5 hours before official sunrise. At each survey stop the observer recorded all birds seen and heard during a three-minute interval. The average total duration of the survey was 4.5 hours.

Table 1. Spring migration survey summary - 1984.

Survey date	Total no. species	Total no. individuals
April 3	24	421
5	28	416
10	32	798
12	30	433
16	35	551
19	43	751
24	39	508
27	50	853
30	52	1471
May 6	58	947
9	48	730
11	59	1017
15	63	765
18	75	935
22	81	1112
26	86	1189
30	87	1070

Results

A total of 131 species were recorded during the 17 surveys. The number of species recorded on a single survey increased from 24 on 3 April to 87 on 30 May (Table 1).

Three species were new for Elk Island National Park: Virginia Rail (one, on 18 May), Rough-winged Swallow (one, on 22 May), and Magnolia Warbler (one, on 26 and 30 May) (Table 2). Other highlights included 550 White-fronted Geese on 30 April, a maximum count of 19 drumming Ruffed Grouse on 27 April, a male Varied Thrush on 11 May, and 4 male Chestnut-sided Warblers on 30 May. At least one Chestnut-sided Warbler remained on territory in the park throughout June and July.

Early migrants such as most waterfowl species, Red-tailed Hawks, Robins, Starlings, Dark-eyed Juncos, Red-winged Blackbirds and Western Meadowlarks increased in numbers steadily throughout April. Winter residents (Snow Bunting, Bohemian Waxwing) and very early migrants (Horned Lark, Tree Swallow) were not recorded after mid-April.

Table 2. Earliest records* and maximum counts of species recorded on the Elk Island migration survey route, spring 1984.

Species	Earliest record	Maximum count
Common Loon	16 April	4
Pied-billed Grebe	19 April	4
Horned Grebe	27 April	10
Red-necked Grebe	16 April	46
Eared Grebe	24 April	3
Double-crested Cormorant	26 May	15
American Bittern	26 May	1
Great Blue Heron	30 April	1
Black-crowned Night Heron	30 May	3
Whistling Swan	10 April	49
White-fronted Goose	30 April	550
Canada Goose	3 April	229
Green-winged Teal	10 April	40
Mallard	5 April	111
Pintail	5 April	42
Blue-winged Teal	19 April	21
Northern Shoveler	16 April	4
Gadwall	30 April	7
American Wigeon	5 April	36
Canvasback	19 April	4
Redhead	27 April	4
Ring-necked Duck	16 April	22
Lesser Scaup	12 April	44
Common Goldeneye	10 April	18
Bufflehead	10 April	27
Common Merganser	6 May	2
Ruddy Duck	6 May	3
Bald Eagle	5 April	1
Northern Harrier	10 April	1
Sharp-Shinned Hawk	19 April	1
Cooper's Hawk	6 May	1
Broad-winged Hawk	27 April	2
Red-tailed Hawk	5 April	7
Ruffed Grouse	3 April	19
Virginia Rail	18 May	1
Sora	18 May	9
American Coot	27 April	15
Killdeer	10 April	5
Lesser Yellowlegs	19 April	34
Solitary Sandpiper	22 May	4
Spotted Sandpiper	11 May	5
Baird's Sandpiper	6 May	2
Common Snipe	19 April	34
Franklin's Gull	18 May	2
Bonaparte's Gull	30 April	109
Ring-billed Gull	12 May	8
Common Tern	22 May	2
Forster's Tern	26 May	1
Black Tern	22 May	13
Mourning Dove	27 April	14
Great Horned Owl		10
Ruby-throated Hummingbird	30 May	1
Yellow-bellied Sapsucker	24 April	37
Downy Woodpecker		5
Hairy Woodpecker		4
Common Flicker	24 April	12
Pileated Woodpecker		15
Olive-sided Flycatcher	30 May	1
Western Wood Peewee	18 May	8
Least Flycatcher	15 May	79
Eastern Phoebe	19 April	4
Eastern Kingbird	22 May	2
Horned Lark	3 April	64
Tree Swallow	24 April	41
Rough-winged Swallow	22 May	1
Barn Swallow	15 May	7
Blue Jay		22
Black-billed Magpie		9
Common Crow	3 April	40
Black-capped Chickadee		47
Boreal Chickadee		3
Red-breasted Nuthatch	27 April	2
White-breasted Nuthatch	3 April	11
House Wren	22 May	9
Marsh Wren	26 May	1
Ruby-crowned Kinglet	16 April	8
Mountain Bluebird	3 April	2
Veery	22 May	2
Swainson's Thrush	18 May	1
Hermit Thrush	27 April	14
American Robin	3 April	126
Varied Thrush	11 May	1
Bohemian Waxwing	3 April	6
Cedar Waxwing	30 May	2
Starling	3 April	60
Warbling Vireo	15 May	5
Philadelphia Vireo	30 May	12
Red-eyed Vireo	18 May	14
Tennessee Warbler	15 May	24
Orange-crowned Warbler	11 May	48
Yellow Warbler	15 May	4
Chestnut-sided Warbler	30 May	4
Magnolia Warbler	26 May	1
Yellow-rumped Warbler	19 April	17
Palm Warbler	26 May	1
Blackpoll Warbler	18 May	5
American Redstart	22 May	5
Ovenbird	18 May	13
Northern Waterthrush	18 May	4
Connecticut Warbler	15 May	2
Mourning Warbler	30 May	1
Common Yellow-throat	18 May	12
Wilson's Warbler	22 May	2
Western Tanager	30 May	2
Rose-breasted Grosbeak	18 May	16
Tree Sparrow	3 April	18
Chipping Sparrow	15 May	42
Clay-colored Sparrow	15 May	48
Savannah Sparrow	30 May	7
LeConte's Sparrow	15 May	8
Song Sparrow	16 April	35
Lincoln's Sparrow	27 April	22
Swamp Sparrow	24 April	26
White-throated Sparrow	19 April	99
Dark-eyed Junco	5 April	71
Snow Bunting	3 April	46
Red-winged Blackbird	10 April	301
Western Meadowlark	3 April	3
Yellow-headed Blackbird	30 May	4
Brewer's Blackbird	10 April	6
Common Grackle	12 April	26
Brown-headed Cowbird	9 May	86
Northern Oriole	15 May	23
Purple Finch	19 April	20
Pine Siskin	12 April	16
American Goldfinch	26 May	5
Evening Grosbeak	3 April	14
House Sparrow		2

*Several species were recorded at earlier dates at locations other than the survey route. Earliest record is not given for permanent residents.

Two major migration surges were noted. The first big wave of sparrows appeared about 25 April. Species recorded from late April on included Swamp, Song and Lincoln's Sparrow, as well as Tree Swallow, Yellow-bellied Sapsucker and Yellow-rumped Warbler.

Other species arrived gradually until 13 May, when a major influx of insectivorous species arrived. During the following week, a period of wet, overcast weather, large numbers of Least Flycatcher, Barn Swallow, Warbling Vireo, Tennessee, Orange-crowned, Yellow, Palm, Blackpoll, Yellow-rumped and Connecticut Warbler, Ovenbird, Leconte's, White-throated, Chipping and Clay-colored Sparrow, Rose-breasted Grosbeak and Northern Oriole were recorded.

There were few new arrivals during the continued cool, wet weather of late May. Veeries were first recorded on 22 May, a month after the first Hermit Thrushes. The first Double-crested Cormorants and American Bittern were observed on 17 and 26 May, and Black-crowned Night Herons were first observed on 30 May. Species which arrived in the park at the end of May and during the first week of June, after the migration surveys were completed, included Ruby-throated Hummingbird, Cedar Waxwing and Sharp-tailed Sparrow.

In Elk Island National Park Greater Yellowlegs are only seen during migration. This well camouflaged Yellowlegs was photographed on its nest in an Alberta muskeg by Professor William Rowan.

Discussion

The 1984 spring migration provided some new information regarding bird migration in this area. By far the most notable aspect of Elk Island National Park's spring migration is the large numbers of waterfowl on the park's lakes after the April thaw. Many species that are abundant in the Beaverhill Lake area to the southeast are rare or unknown in the park. In spite of an abundance of waterbodies, few lakes have extensive beaches or mud flats, and most are enclosed by trees. No flocks of peeps or other northern shorebirds were recorded, and records of White-fronted Geese and Whistling Swans were of flocks flying over the park, not resting on park waterbodies.

Timing of migration appeared to be related to phenological events in the habitat. Tree Sparrows and Horned Larks arrived when the first patches of bare ground opened up; similarly, waterfowl began to appear as soon as small patches of open water appeared along the edges of sloughs and lakes. Peak numbers of migrant waterfowl corresponded with the final disappearance of ice from water bodies. The first surge of sparrows correlated with the period when snow cover was rapidly ablating and the first green grass and willow catkins were appearing. The major influx of insectivorous species on 13 May coincided with the development of a full aspen canopy, and most migrants during the following week were seen in the aspen canopy. On 17 May, near Astotin Lake, a single aspen bluff contained 8 Yellow-rumped Warblers, 3 Yellow Warblers, 2 Blackpoll Warblers, 3 Least Flycatchers, 2 Clay-colored Sparrows, a pair of Rose-breasted Grosbeaks, 30 Red-winged Blackbirds and 20 Tree Swallows. All were feeding on large moths in or adjacent to the tree canopy.

Although the park is considered a southern outlier of the Boreal ecoregion, there was a notable scarcity of boreal passerines. This may be partly due to the barrier posed by the prairie

regions to the south to boreal migrants (A.J. Erskine, pers. comm.). No Black-throated Green, Black and White, Cape May, or Bay-breasted Warblers were observed in migration. Northern Waterthrushes and Palm Warblers were observed during the last quarter of May but did not remain to breed. One singing male Black and White Warbler was observed in mid-June. In most respects both the spring migration and the breeding population (unpublished data) do not differ markedly from those of the surrounding Aspen Parkland Ecoregion (Salt and Salt 1976).

Literature Cited

Burns, G.R. and N. Cool. 1984. A Biophysical Inventory of the Non-ungulate Mammals of Elk Island National Park. Canadian Wildlife Service report for Parks Canada. 195 pp.

Erskine, A.J. 1980. The first ten years of the Cooperative Breeding Bird Survey in Canada. Canadian Wildlife Service Report Series No. 42.

Holroyd, G.L. and K.J. Van Tighem. 1983. The Ecological (Biophysical) Land Classification of Banff and Jasper National Parks. Volume III. The Wildlife Inventory. Canadian Wildlife Service report for Parks Canada. 691 pp.

Poll, D.M., M.M. Porter, G.L. Holroyd, R.M. Wershler and L.W. Gyug. 1984. Ecological Land Classification of Kootenay National Park, British Columbia, Volume II. Wildlife Resource. Canadian Wildlife Service report for Parks Canada. 260 pp.

Salt, W.R. and J.R. Salt. 1976. The Birds of Alberta. Hurtig Publishers. Edmonton. 498 pp.

Van Tighem, K.J. and L.W. Gyug. 1984. Ecological Land Classification of Mount Revelstoke and Glacier National Parks, British Columbia. Volume II. Wildlife Resource. Canadian Wildlife Service report for Parks Canada. 254 pp.

Authors' Address:
Canadian Wildlife Service, 1000 - 9942 - 108 Street, Edmonton, Alberta T5K 2J5

Elk Island National Park, the only fenced one in Canada, began in 1906 as a preserve for local elk. In 1907 it was used as a temporary "holding pen" for bison destined for the now defunct Buffalo National Park at Wainwright, which was ceded to the Armed Forces in 1947. Photo: Dick Dekker

F.A.N. NEWS

The 1985 **Annual General Meeting** of the Federation will be held at the Dawe Community Center, 5605 Holt St., Red Deer, on January 26, at 10:00 a.m. Registration will be at 9:00 a.m. An evening program is planned, with the topic "Natural History Studies - What Role Can You Play?", and will feature the following speakers: *Jack Park* - Breeding Bird Surveys; *Andrew Slater* - Christmas Bird Counts; *Geoff Holroyd* - Bird Banding Stations.

The evening program will start at 7:30 at the Dawe Center. On Sunday a field trip will be led by the Red Deer River Naturalists to Gaetz Lake. I look forward to seeing many members there! Here is an opportunity for new members and old hands to compare notes on their field experience in cooperative natural history studies.

For those members attending the meeting from out-of-town, Maxine O'Riordan has kindly consented to coordinate billeting. Please get in touch with Maxine at 347-4827, evenings.

On Saturday, after the A.G.M. at which members are entitled to vote on or suggest issues and resolutions, a short field trip will be arranged for participants.

Canadian Wildlife Service Staff Cuts

The following is a copy of a letter sent on behalf of The Federation to the Minister of Environment regarding the budget cuts that hit rather excessively at the C.W.S. I would urge all members to personally write to the Minister on this matter, and to send a copy to your local M.P. and to the opposition critics. Every letter helps.

The Honourable Dr. Suzanne Blais-Grenier
Minister of the Environment,
House of Commons, Ottawa, Ontario K1A 0A6

Dear Dr. Blais-Grenier:

We are extremely concerned about the recent decision to cut important wildlife research and other programs in Environment Canada. There is a clear need for competent wildlife research biologists to set standards across Canada. In Alberta, we cannot depend on provincial departments to carry out wildlife research and, in fact, we have been urging Environment Canada to establish a greater role as a watchdog over our provincial environment department. These concerns have been expressed at public consultation meetings held in Edmonton with D.O.E. recently - but it would appear that the public concerns are not being listened to.

The value and importance of wildlife to Canadians is very high as shown by the 1981 survey of "Importance of Wildlife to Canadians" which was completed by the Canadian Wildlife Service in conjunction with StatsCan. Our organization recognizes the importance of a strong wildlife service federally to ensure that good standards of wildlife management are maintained. Historically, the Federal-Provincial Wildlife Conference has illustrated the value of two levels of wildlife expertise. Furthermore, the loss of research programs in our National Parks is extremely nearsighted. At a time when the National Parks are being intensively used, and more increasingly so every year, it is essential that we have knowledgeable scientists who can help reduce the impact by appropriate design limitations on facilities. If we lose our National Parks essential qualities by poorly regulated development, then we surely lose the tourist appeal of those parks, as well as let down future Canadians who have a right to our Heritage Lands.

We would hope that there is some way that the federal government can retain a good wildlife research program. Wildlife scientists in the Canadian Wildlife Service are held in high regard internationally and environmental initiatives by Environment Canada have been very significant. In a world of increasing potential for ecological disasters, now is not the time for the government to absolve itself of its responsibility towards conservation.

We look forward to your response to our concerns.

Sincerely,

David M. Ealey
President, F.A.N.

cc: Right Honourable Brian Mulroney
Prime Minister of Canada

We are pleased to announce that Andrew Slater has agreed to act as provincial coordinator for the *Christmas Bird Count* results. Results from regional counts should be sent to him at 22 Hillgrove Dr. S.W., Calgary, Alberta T2V 3L6 (phone 252-4364).

It has come to our attention that some members did not receive a copy of the introductory issue of the *Alberta Bird Record* with the March issue of the AN. If so, and you wish to receive a copy, it can be obtained by writing to the Alberta Ornithological Records Committee, c/o Calgary Field Naturalists' Society, P.O. Box 981, Calgary, Alberta T2P 2K4

ANNOUNCEMENTS

Canadian Waters: The State of the Resource

Toronto, May 1985

A symposium on this timely topic will be held May 26-29, 1985 at the Royal York Hotel, Toronto. The Rawson Academy of Aquatic Science, a non-profit, Canadian organization made up of aquatic resource-oriented scientists, educators and managers from across Canada, is hosting this national review of aquatic resources, their quantity, quality and distribution in relation to present and projected demand.

Twenty theme papers will be presented on diverse aquatic-related topics and contributed scientific papers will be presented at concurrent sessions at the symposium. Invited papers reviewing significant scientific, technical and policy information will be edited and published by the Academy.

Enquiries regarding registration, exhibit and display space, student assistance and spouse's program should be directed to the Symposium Co-ordinator, The Rawson Academy of Aquatic Science, #200, 601 - 17 Ave. S.W., Calgary, Alberta T2S 0B3 (403) 228-0407.

Eighth International Wildlife Film Festival

April 1 - 7, 1985

The University of Montana Chapter of The Wildlife Society will again sponsor the Eighth International Wildlife Film Festival on April 1-7, 1985 at the Missoula campus. The primary purpose of the Festival (IWFF), is to encourage excellence in the making of wildlife films. Today, the IWFF continues towards its original goal by providing film competition, awards, educational events, and showings which constitute the Festival.

The deadline for submission of application and films is March 8, 1985. All entries must have a predominantly wildlife theme and have been produced or released during the calendar year 1984 (exceptions to be put in writing). Judging will be held prior to the Festival. Winning entries will receive certificates and the results will be internationally published.

Information, rules of eligibility, application forms, and the Festival agenda can be obtained by writing or calling:

Wildlife Film Festival, Wildlife Biology Program, University of Montana, Missoula, Montana 59812, (406) 243-5272.

F.A.N. is sponsoring a **wildlife poster contest** in association with schools throughout Alberta. The topic of the contest is one of concern to us all "What would life be like without wildlife?". With present estimated rates of extinction for plants and animals, this is a very timely topic.

Arrangements are being made through the Environmental Education teachers in the Alberta Teacher's Association to prepare, distribute and coordinate various aspects of the contest. We hope to have instructions and background material to teachers by the middle of January, with a deadline for receiving posters in the early spring. Several exciting prizes are planned for each of three age categories; these categories will likely be Grades 1-3; Grades 4-6, and Grades 7-9. Further information will be forthcoming through the school system's lines of communication to all teachers in the pertinent grades. In addition, information requests to F.A.N. should be sent to P.O. Box 1472, Edmonton, T5J 2N5.

Dave Ealey

NOTES AND NEWS

Working for Ecosystem Preservation

Interest in the preservation of ecosystems arises from the realization that management of the biosphere requires knowledge and understanding of the structure and functioning of the many different ecosystems that comprise it. It is rooted also in the knowledge that natural ecosystems are the product of a long process of evolution and, once modified by man, are virtually impossible to recreate. To maintain the productivity and resiliency of all ecosystems is the ethical goal toward which individual groups and governments are increasingly directing their efforts.

A group designed to facilitate and coordinate these efforts in this country is the Canadian Council on Ecological Areas, established in 1982 in recognition of the need to draw together common interests from across Canada to focus attention on the importance of preserving natural ecosystems. The council's purpose is to provide an independent national forum to encourage and facilitate the selection, legal protection and stewardship of a comprehensive system of ecological reserves in Canada and the pursuit of relevant research and investigation.

One of the chief objectives of the Council is to generate support for the establishment of a comprehensive Canadian System of Ecological Reserves. These areas are defined by the Council as viable examples of natural or modified ecosystems protected by law or by dedicated ownership for their heritage values and their suitability for research, monitoring and environmental education. They may contain rare or endangered plant or animal species which should be preserved in their natural habitats, and they may display unique, rare or representative examples of the structure and functioning of ecosystems.

Other objectives of the Council include: facilitating information exchange among governments and interest groups; advising and assisting governments and other agencies in the development of Canadian System of Ecological Reserves and in the preparation of guidelines for their establishment; evaluating and reporting on existing and proposed reserves of this nature; and establishing contact with similar interest groups abroad.

The work of the Council is supported by funds, materials and services from participating organizations.

For further information, contact: The Secretariat, The Canadian Council on Ecological Areas, Ottawa K1A 0E7.

Land Vol. 5(2): 4.

Water Use Hearings

Residents of southern Alberta have been asked to present their views on water use in the South Saskatchewan River basin at public hearings this November and December. The hearings were held by the Alberta Water Resources Commission in Calgary and nine other centres.

After the hearings the Commission will make recommendations to the government on a number of water management issues in southern Alberta, the most important being priorities for water use, how water will be managed to meet those needs and the amount of water that each river in the basin will carry into Saskatchewan.

The South Saskatchewan River basin includes the Red Deer, Bow, Oldman and South Saskatchewan rivers. A 1969 agreement with the prairie provinces and the federal government allows Alberta to consume 50 per cent of the natural flow in the South Saskatchewan each year. The remainder must be passed on to Saskatchewan.

Many of the questions that have to be answered about water use in the basin are addressed in an 88-page summary report and scenarios released by Alberta Environment in August. These documents were distributed widely in southern Alberta and are intended for public review and as background information for anyone who planned to make a submission at the hearings.

Before the hearings started, Alberta Environment held public meetings at various locations throughout southern Alberta to explain the information contained in the report. To get a copy of the report, call Alberta Environment's planning division in Calgary (297-8282).

Environment Views Vol. 7(5).

Significant Archaeological Find Near Banff

While preparing for the 100th anniversary of Canada's first national park at Banff, Alberta, Parks Canada has found that someone was there long before 1885.

Carbon dating has verified that Parks Canada archaeologists have unearthed a prehistoric campfire where mountain sheep were cooked over 10,000 years ago.

The site, which is about five km west of the Banff townsite, was discovered last summer during a routine survey along the right of way for the Trans-Canada Highway twinning project.

Most tests were unproductive, but in one area a few remains from prehistoric stone tools were discovered. Archaeologists opened a larger test excavation and soon uncovered layer upon layer of evidence indicating human activity. A musket ball was found near the surface, layers of artifacts were found in the middle, and a hearth, with the bones of butchered animals, was found near the two-m mark.

"The preservation has been very good in the older levels, where earlier slides encapsulated the land surfaces, each of which provides a window to specific time periods," said Parks Canada archaeologist Daryl Fedje. "We are finding things every day."

First excavated last fall, the site has yielded artifacts that include spear points, atlatl points (points from darts hurled with throwing sticks), arrowheads, stone tools used for working hides and butchering animals, and a wealth of animal remains.

The people who lived in the area 10,000 or more years ago were hunters and gatherers whose diet included mountain sheep that Mr. Fedje said were 10 to 15 per cent larger than today's mountain sheep.

"We may be able to discover what kind of structures they lived in and get more clues about the vegetation, among other things," Mr. Fedje said. "The site appears to be one of the few sites that has a great deal of potential for showing how these mountain people lived and coped with their environment. A site with artifacts so well preserved and stratified is unique in this part of the country."

Parkscan Vol. 5(4): 1-2.

Alberta Farmers Report Health Effects of Pesticides

Twenty-six percent of Alberta's grain farmers report experiencing negative effects from using pesticides, according to an Alberta Agriculture Department survey. Headaches, nausea, vomiting, respiratory, sinus and eye problems, allergies, aching joints and loss of smell were the types of symptoms pointed out by the farmers.

- taken from vol. 1 no. 2, 1984 of Infoetox, published by Friends of the Earth.

In the latest issue of **Parks**, a list of nominations for the "World's Most Threatened Protected Areas" is published and includes only one candidate from Canada, out of 5 listed for North America. That candidate is Wood Buffalo National Park, under the threat of a hydro dam proposal. A final list of 10 sites out of 37 candidate areas world-wide will be selected in November at the International Union for Conservation of Nature (IUCN) meeting.

Dave Ealey

Order of the Bighorn Awards

The Order of the Bighorn conservation award was established in 1982 by the Minister responsible for Fish and Wildlife and recognizes outstanding contributions by private individuals, organizations or corporations in the field of fisheries and wildlife conservation. The third annual awards presentation was held in Edmonton on November 21. Two of the recipients of this year's award are well known to many Alberta naturalists.

Brigadier-General (retired) Miles Smeeton was nominated for his work in reintroducing the swift fox to western Canada and for his lifelong dedication to wildlife conservation. Mr. Smeeton and his wife, Beryl, emigrated to Canada from England. He purchased a ranch 24 km northwest of Cochrane and established a portion of the ranch as a private wildlife reserve. Mr. Smeeton imported from Colorado several pairs of swift foxes, an animal once common throughout the prairies, but extinct in Canada since the 1930's. Having solved the problem of breeding the swift fox in captivity, Mr. Smeeton supplied young foxes in a successful program to restore the

species to its rightful place in our natural heritage.

A long-time resident of Alberta and professor at the University of Alberta, Ray Salt was one of the original authors of "Birds of Alberta". A current revision of this widely used and appreciated guide was written and illustrated by Professor Salt and his son, Jim. This book has done much to make Albertans aware of our rich wildlife resource.

Other recipients of the award were Robert and Jeannette Burns of Pincher Creek, August Peters of Worsley and Canadian Hunter Exploration Ltd. of Calgary.

J. Derek Johnson

Errata

A line was inadvertently omitted from the review of **Weeds of Alberta** (AN 14(2): 78). The second sentence in the second last paragraph should read: "I fail to see the need for an entire page of "Notes" at the end of each family, or the need to have each family heading on a separate page."

The caption for the photograph on p. 110 Vol. 14(3) should read: "*Cicindela formosa*, one of the **rarest** species of tiger beetle to be found in Alberta."

From the Editor

The *Alberta Naturalist* continues to develop and evolve in its new format, but as with many endeavors, the unexpected is coming to be expected. Regardless of how carefully, thoroughly, or early material is prepared for publication there always seems to be a gremlin waiting in the wings to quell our eagerness. The editor's absence from town over the summer months was a contributing factor to the lateness of Vol. 14 No. 3, but unexpected delays caused by needed revisions to articles, typesetting and printing were equally responsible. Our preparation staff does a lot of scurrying around over a short period of time to try and get the issues out at a reasonable date, but certain delays seem inevitable. I would like to thank them for their help and patience. I feel that maintaining the overall quality of the AN is more important than trying to get it out on a precise date. We apologize if the delays seem excessive and ask the membership to bear with us. We hope we can improve the situation with time and we will try to keep future delays to a minimum.

The ever-present need for material to include in the AN continues. No submission is too large or insignificant to be considered. The quality of the AN depends on the quality of the material we get - so let us see some quality material from you folks out there!

J. Derek Johnson

GODFREY TOURS presents

FLORIDA: EVERGLADES & KEYS

March 23 to April 7, 1985

This two week Natural History tour of Southern Florida will explore a variety of habitats ranging from coral reefs and tidal mud flats to sawgrass marsh and bald cypress swamps. The great diversity of wildlife includes: alligators, frogs, lizards, herons and egrets, ibis, storks, anhingas, purple gallinules and much, much more. Professional tour leader is Terry Thormin.

Fee for 9 days (March 23-31 to correspond with spring break for school teachers) is $1,197 (Can.); and for 16 days (March 23 - April 7) is $1,659 (Can.).

Contact: Godfrey Tours Ltd., 8208 - 139 Street, Edmonton, Alberta T5R 0G4 for further details.

CLUB NEWS

Edmonton Natural History Club

The Edmonton Natural History Club's 1984-85 season began on September 11 with Bruce McGillivary of the Provincial Museum speaking on his research on Brewer's Sparrow. The October 9 meeting featured an informative presentation by Orval Pall of the Alberta Fish and Wildlife Division on the cougar project in the Kananaskis area. Dr. Jim Butler gave a talk entitled "The Art of Natural History: A survey of the Naturalist/Artist of North America" at the November 13 meeting. "The Private Lives of Marine Invertebrates" was the title of the December 11 presentation by Dr. F.S. Chia, Dean of Graduate Studies and Research at the University of Alberta. It was absolutely fascinating! January 8 will be the club's Annual General Meeting and "Members' Night". The tenth annual Loran L. Goulden Memorial Award will be presented at this meeting. Meetings continue to be held at 8 PM on the second Tuesday of each month in the Auditorium of the Provincial Museum of Alberta.

Winter brings a decrease in field activities, but the club had a good turnout for the annual Edmonton Christmas Bird Count on December 16.

J. Derek Johnson

BOOKS!

Natural history books from around the world. Hard-to-find titles, including local, North American & foreign field guides. Selections for beginners to advanced naturalists! Prompt mail-order service. Visa orders welcome. Send $1.00 for our annotated catalogue, listing hundreds of titles.

* * *

the field-naturalist

Special order book service for naturalists

P.O. Box 161, Brentwood Bay, B.C.
V0S 1A0 Telephone 652-3525

Edmonton Bird Club

The Executive of the Edmonton Bird Club for the 1984-85 season are as follows:
President - Dr. Robert Turner
Vice-Pres. - Muriel Clarke
Secretary - Eric Wallace
Treasurer - Jack Park
Field Sec'y - Paul Peterson
Directors - Rainer Ebel, Edgar Jones, Pryce Ashton, Mae Cox

Committee Representatives are: Audubon - Ron McElhaney; F.A.N. - Margot Hervieux and Dave Ealey; Clifford E. Lee - Jim Flatman; Wagner Natural Area - Terry Thormin; Whitford Lake - Mae Cox; Beaverhill Bird Observatory - Geoff Holroyd, Rainer Ebel, Pryce Ashton.

A new birding pamphlet for Bearhills Lake, written by Hank Melax has just been completed. Requests for copies should be sent to the Edmonton Bird Club, Box 4441, Edmonton, T6E 4T5. Cost is 25 cents each, plus a stamped, self-addressed envelope with your order.

Dave Ealey

Calgary Field Naturalists' Society

Visitors to Calgary can now learn where the "hot" birds are! In conjuction with the City of Calgary Parks Dept., naturalists may now call the Bird Hot-Line (a.k.a. Wildlife Information Line) at 237-8821. During office hours, you will reach a knowledgeable naturalist; after hours, a tape is played which will list the bird sightings of note and where to look for the birds.

Kate Jones

Letter to the Editor

Dear Mr. Johnson:

This is in response to the article, "Viewing Wildlife, Special Review by M.T. Myres" as printed in Volume 14, Number 3, September 1984 of the Alberta Naturalist.

We did not intend to respond publicly, since his was one of the many comments received and we had already discussed his points with him. However we have received a few letters in which the writers base their views only on Myres' review, and we feel that a few points should be clarified. The first point is that we regret not publishing the document with one of the original titles which read, "The Government's Assessment of the Status of Selected Species of Fish and Wildlife in Alberta". This document was not intended to be a detailed scientific account of every species in Alberta, nor was the intent to replace any such future account. This is a management document written for public information and dialogue. As stated clearly on page 21, the intent was to provide in detail the government's assessment of those species which;

1. require immediate attention to ensure their survival, i.e. endangered, threatened and rare species,
2. require continued attention since the government is responsible for regulating their use, and unregulated use of these species would certainly result in population declines,
3. require increased attention since current trends in habitat alteration likely will ultimately result in population declines.

"The status of the many other species which require less active management to maintain viable populations is presented in less or no detail."

There was no effort to exclude non-game species from the status document. Certainly there may have been important omissions, especially since we used the COSEWIC national list, for reasons explained in the COSEWIC 1982 report, and it is agreed that the amount of habitat available to many Alberta species is declining. The status report is a step in the attempt to arrest this trend. Priorities were established in assembling the report, and we defend these priorities on the basis that immediate problems and potential problems were addressed first.

We hope that, with the help of groups such as the Federation of Alberta Naturalists, the next status report will be more inclusive.

Incidentally, non-consumptive use does not equal "bird use". As shown on Table 4 of the Status Report our information implies that most Albertans want to view "consumptive" species like deer and elk, rather than birds.

Yours truly,

Paul Paetkau,
Director of Resource Planning, Alberta Energy and Natural Resources, Fish and Wildlife Division

DOUBLE L SADDLERY & LEATHER SHOP

SALES • SERVICE • RENTALS

ON SPECIALIZED OUTDOOR AND CAMPING EQUIPMENT FOR THE
X-COUNTRY SKIER • HIKER • BACKPACKER • HORSEPACKER • CANOEIST

Repairs on all kinds of equipment
10% discount on new equipment to Naturalist Club Members
All products personally tested

LLOYD M. LOHR
Box 1414, Stettler, Alberta T0C 2L0
Phone (403) 742-3846

Sparrow Hawk on a nest in Britain. This Accipiter *is the European counterpart of our Sharp-shinned Hawk but it is somewhat bigger, about mid-size between a Sharp-shinned and a Cooper's Hawk. The photo was taken by Professor William Rowan.* *See article pages 121-125.*

F.A.N. Membership Fees Are: Regular $10 per year; Supporting, $25 or more per year (with excess over $10 being deductible from your taxable income):

ENCLOSED IS $_____ COVERING A _____ YEAR REGULAR MEMBERSHIP

ENCLOSED IS $_____ COVERING A _____ YEAR SUPPORTING MEMBERSHIP

NAME _____

ADDRESS _____

_____ POSTAL CODE _____

SEND TO:
FEDERATION OF ALBERTA NATURALISTS
Box 1472, Edmonton, Alberta T5J 2N5

Hunting by Horned Owls in the "Alpine Zone" of the Rockies

Jim R. Salt

While bivouacked on an "alpine meadow" in Kootenay Park in the spring of 1957, I was awakened about 12:30 a.m. by light snow, and as I prepared to move camp, noticed a Great Horned Owl, *Bubo virginianus*, in the light of my head-lamp. The bird was perched on a rock or hummock, about 8 m away from me, and was holding the remains of a small mammal with one foot. Although it did not seem disturbed by the light, it took flight almost immediately, carrying its prey with it, when I attempted to approach. I assumed at the time that this bird was from the forests about 1 km distant and 100 m lower in elevation, and that late spring snow in the forests at middle and upper elevations and unusually cold weather in the region had perhaps driven the owl out of its "normal" hunting range.

Since that observation in the late 1950s however, I have noted Horned Owls or their pellets in the high subalpine/alpine zones on a few other occasions, in the Columbia Icefields region. Most of these records are from high above treeline and the circumstances seem worth noting.

On two occasions in the summer of 1978, I climbed peaks above Wilcox Pass (Wilcox and Nigel Peaks), making a visual inspection of the ground for faunal signs, at elevations from 2580 m to 3000 m. I was at least 300 m, and as much as 800 m, above local treeline, and from 1 to 2.5 km (surface distance) from trees. On Nigel Peak I found a group of 3 owl pellets at an elevation of approximately 2890 m; these contained hair, bone and 1 skull of Heather Vole, *Phenacomys intermedius*; bone and fur of a ground squirrel – probably Mantled, *Spermophilus lateralis* – and some bone and fur of Snowshoe Hare, *Lepus americanus*. On Wilcox Peak, N face, about elevation 2650 m, I found 2 pellets, containing bone and fur of Columbia Ground Squirrel, *Spermophilus columbianus*, and fur and a partial skull of Heather Vole. These pellets were old, but were not at all decomposed, and I estimated that they were probably deposited no earlier than April or May of the same year. All were on small rock prominences affording some level ground.

On 6 July 1979 I climbed Wilcox Peak by the east ridge and north face, looking for evidence of nesting Golden Eagles. I noticed a regurgitated pellet on top of the cairn on the SE summit, elev. about 2940 m. This specimen contained some vole fur, and bone and cranial fragments of one or more larger mammals. I was unable to identify with certainty these larger remains; they seemed to be a mixture of ground squirrel and hare or Bushy-tailed Wood Rat (*Neotoma cinerea*). This pellet too was not fresh, but must have been deposited within six to ten weeks, since wind or rain and snow-melt would have removed or destroyed it in the course of a few months.

Although these pellets all resembled those of Great Horned Owl in every respect, I was not completely convinced of this identification, partly because Horned Owls had seldom if ever been recorded in the relatively small forested areas of Sunwapta Pass, below; and partly because two of the three groups seemed to contain remains of ground squirrel, a diurnal species.

On the night of 6-7 Aug., 1979, I bivouacked on the open crest of the east end of Parker's Ridge, about 7 km southeast of Wilcox Pass, at elev. 2300 m, less than 1 km (surface distance) from local treeline. I awakened twice during the night and noted at least 2 and possibly as many as 4 Horned Owls hunting back and forth, remaining 1-2 m above the heathers. The sky was cloudy, there was no moon, and observation was difficult except at close range. One owl alighted briefly on a rock or hummock about 3-5 m away, and seemed to be trying to cast, with some difficulty. Heavy rain from about 4:00 a.m. until dawn ended my observations.

About 3:45 p.m. on 2 April, 1981, I met two skiers descending from the west end of Wilcox Pass (head of Tangle Creek), who reported having just "flushed" a large bird into trees below the open pass. They believed this to be a Goshawk, *Accipiter gentilis*, because of its large size and quick shallow wing-beats, but their description suited more closely that of a Horned Owl. The skiers had described the pass as mostly snow-covered, with a few large bare sections on high ground. Their bird had apparently been

perched on one of these bare spots. The day was cold, heavily overcast, but not dark. Since I was on skis at the time of this meeting, and near the head of Tangle Creek, I continued to the bottom of the steep entrance-slopes below Wilcox Pass, and found an adult Horned Owl in a small patch of Alpine Fir, just at treeline, perched 1.5 m above the snow surface. It flew up into the rocks of the lower NW face of Wilcox Peak, where it took shelter in a chimney (narrow steep gully).

A number of authors have noted Horned Owls feeding during daylight hours (Bent, A.C. 1938. Life histories of North American birds of prey. Pt. 2: Orders Falconiformes and Strigiformes. U.S. Nat. Mus. Bull. 170: p. 307-326). Many observers also list diurnal ground squirrels among the food species taken by these raptors. It is possible that Horned Owls utilize the high open subalpine and alpine zones, with their abundant source of small mammals, more extensively than we suspect.

Author's Address:
8731 – 117 Street, Edmonton, Alberta T6G 1R6

On the Alberta plains as well as on high mountain slopes, the Great-Horned Owl manages to survive, summer and winter, as long as there are small mammals to hunt.

Photo: Jim R. Salt

Waterfowl Surveys on the Prairies

Kent Brace

In the early 1900s the exploitation of North America's waterfowl resources was unregulated. Ducks and geese were hunted throughout the year. Waterfowl were viewed as a commercial resource that was bartered and sold in the market place.

This unregulated hunting had a pronounced impact on many bird populations. So, in 1917, Canada and the United States signed a Migratory Bird Convention Act in order to safeguard North America's migratory bird populations.

The Canadian Wildlife Service (CWS) derives its mandate from the Migratory Bird Convention Act and is therefore responsible for regulating the use of migratory game birds and ensuring that no migratory bird becomes threatened or extinct through man's action.

The objectives of the CWS' waterfowl survey program are to monitor migratory bird stocks and to recommend hunting regulations that will optimize the utilization of our game bird resources. Optimum utilization means maximizing recreational opportunities while ensuring that hunting does not jeopardize the status of our game bird stocks.

The monitoring function of the program involves assessing the status, distribution, productivity and mortality of key migratory game bird populations. More simply put, monitoring involves determining (1) how many birds there are, (2) where they are, (3) how many are born, and (4) how many die each year.

A series of operational programs are used to perform the four monitoring tasks. The Waterfowl Breeding Ground Survey, an aerial survey conducted each May, determines the size and distribution of regional waterfowl populations. A Waterfowl Production Survey, or brood survey, is flown in July to determine how many ducks are produced. Finally, waterfowl mortality is assessed by a regional banding program and by studies of hunter success. Predetermined numbers of ducks are banded throughout prairie Canada each summer. When hunters shoot a banded duck they are requested to report it to the Canadian Wildlife Service. Sophisticated computer models are then used to assess the

level of mortality occurring within key populations. The studies of hunter success involve field contacts and hunter questionnaires. Data collected are used to determine the numbers of ducks and geese shot throughout Canada.

The waterfowl survey program's second function, is that of management which involves interpreting the data collected during the operational programs and recommending appropriate management actions. In most cases, this action involves making adjustments to regional hunting regulations. Conservative regulations, designed to protect breeding stocks, may be suggested when populations are low. Liberal regulations are generally recommended when populations are high. Larger daily bag limits and longer seasons are designed to provide maximum amounts of recreational opportunity to our 150,000 prairie waterfowl hunters without unduly stressing our migratory game bird populations.

The overall goal of the waterfowl survey program is to sustain migratory game bird populations for present and future generations.

Author's Address:
Canadian Wildlife Service, Saskatoon, Saskatchewan

Nesting of Evening Grosbeaks Near Edmonton

Lois Fenna

Professor Salt, in 'The Birds of Alberta' says "Although the Evening Grosbeak is a familiar bird in most of our cities and towns during the winter, it disappears in April or May and its summer distribution is poorly known. In May, females have been seen carrying nesting materials in Edmonton, and adults feeding fully grown young have been seen at Pigeon Lake in late July, yet no nests could be located."

Many more instances of nesting behaviour of Evening Grosbeaks have occurred recently, including the following, on an acreage 50 kilometres S.E. of Edmonton. The observations were made by neighbours of mine, Irene and Bill Salisbury, whose garden is thickly wooded with tall, mature aspen poplars, and adjacent to a small stand of spruce trees, which is not, however, on their property. Irene has maintained a winter feeding station for many years, but this year continued to put out sunflower seeds all spring and summer, and observed courtship behaviour among the grosbeaks from about May 20th. This consisted of males and females fluttering wings and touching their beaks together, and continued into early June. She was, however, unable to track the birds to any nests.

On July 21st, fledglings appeared at the feeder with an adult male, which proceeded to feed them, picking up the sunflower seeds and mumbling in its typical way to discard the shells, and then popping the kernels into the beaks of the chicks. On July 23rd an adult female was also seen at the feeder, and on July 24th the young began to feed themselves. The families continued to be visible for the remainder of the summer, 15 young being the maximum seen at any one time, but it became difficult to distinguish between juveniles and adults by the end of September. It was noticed that any one adult would feed any fledgling that begged for food, not apparently restricting its offerings to its own offspring.

It does appear that nesting of Evening Grosbeaks may be fairly widespread in the Edmonton area, and it should not be very long before an enterprising photographer can provide us with a picture of the nest and eggs.

Author's Address:
Box 213, Tofield, Alberta T0B 4J0

Fledgling Evening Grosbeak.

Photo: Lois Fenna

Tree-Climbing Columbian Ground Squirrel

Joy and Cam Finlay

On a hiking trip from the top of the Sunshine chair lift to Egypt Lake, in Banff National Park, we watched a Columbian Ground Squirrel actively climbing on an alpine larch tree.

We had left the top of the gondola lift about 10:30 on August 11, 1984, and hiked north along the well-defined trail to Healey Pass. Just beyond (north) of Simpson Pass, at the south end of one of the numerous meadows, we spotted our tree climber. We had heard and enjoyed the company of these mountain ground squirrels as we strolled along. Beyond Simpson Pass their calls and activities dominated our attention.

While we watched a couple of youngsters at "play", we suddenly noticed an adult, quite rotund, stand up to and climb a middle-sized alpine larch. It nipped at the lower branches, presumably after the new buds, and then climbed higher. Through binoculars (it was about 30 m away) the squirrel appeared to grasp the trunk with its claws, sometimes using a branch as support, but generally gripping the bark on the trunk as it moved upwards. It stopped to nip at a bud and then moved out on a branch. After about 30 seconds or so of nibbling it would reach above and climb to a higher branch. This continued for about five minutes as it climbed to a height of around 1.5 to 2 m before it started down to ground level, to nibble on the vegetation. At one point it even hung with one back foot as it carefully lowered its body to a lower branch. It acted like a Red Squirrel in slow motion.

This mammal was obviously very familiar with tree climbing and branch hopping. We checked with Geoff Holroyd, of the Canadian Wildlife Service, who had worked in the mountains around Banff for several years. He informed us that the only other report he had heard about was a telephone call of several years ago from someone in the Banff area. The caller had noted a similar behavior, but of course never wrote it up, hence the importance of keeping a naturalist's notebook. If you have seen a tree-climbing ground squirrel drop us a note.

Authors' Address:
Box 8644, Station L, Edmonton, Alberta T6C 4J4

Birds Recorded at a Jasper Feeding-Station

Carol West

On 20 May 1984 my husband R. West and I put up two back-yard feeders at our home in Jasper. The last 10 days of May were marked by an extended period of bad weather, with snow and unusually low temperatures, and as a result we had large numbers of common migrants at the feeders almost constantly. Following is a list of some more interesting or unusual species recorded from 21 May to 4 June:

Golden-crowned Sparrow, *Zonotrichia atricapilla:* 1 m., 21, 24, 25 May and 1 & 2 June.

Red-winged Blackbird, *Agelaius phoeniceus:* 1 fe., 2 m., 24 May; 2 m., 26 May; 1 m., 28 & 30 May.

Yellow-headed Blackbird, *Xanthocephalus xanthocephalus;* 1 fe., 25-26 May; 2 m. & 1 fe. 27 May; 2 m. & 4 fe. 28 May; 2 m. 29 May.

Northern Oriole, *Icterus galbula:* 1 m., 25 May.

Bobolink, *Dolichonyx oryzivorus:* 1 m., 27-30 May.

Rose-breasted Grosbeak, *Pheucticus ludovicianus,* 1 m., 28, 30, 31 May & 3-4 June.

In autumn, the feeders began attracting large numbers of White-crowned Sparrows, *Zonotrichia leucophrys*, about 15 Sept., and we counted more than 45 sparrows on occasion. Four Harris' Sparrows, *Zonotrichia guerula*, 1 ad. m. and 3 im., appeared 26 Sept., and remained until 27 Oct., and a single male came on 6 and 7 Dec. One ad. m. White-throated Sparrow, *Zonotrichia albicollis*, remained from 1 to 27 October and an ad. male appeared again on 8-9 Nov. On 10-11 November 1 Grackle, *Quiscalus quiscula* appeared, with several blackbirds including 1 Brewer's, *Euphagus cyanocephalus*, fe.; 1 Red-winged m. and 2 im.; and 1 Rusty, *Euphagus carolinus.* By 9 Dec. there were 5 Rusty Blackbirds taking seed daily. On 11 Nov. 1 Pygmy Owl, *Glaucidium gnoma*, hit our window while chasing small birds; this individual remained until about 18 Nov. Rosy Finches, *Leucosticte arctoa*, appeared on 9 Nov. and several have come each day until date of writing (9 Dec. 1984); these birds all appear to be of the race which breeds locally (*L. a. tephrocotis*).

Author's Address:
Box 1086, Jasper, Alta. T0E 1E0
(Abstracted from a longer report by Jim R. Salt)

Concerned note from Edgar T. Jones

During August and September 1984, I was appalled at the great dearth of small birds such as Warblers, Sparrows and Grosbeaks, migrating through my backyard overlooking Whitemud Creek in Edmonton. It prompted me to review my banding records since 1971. In that year I was banding 95 birds per 100 net hours. This past year, during the same time at the same location, the count dropped to 11 birds per 100 net hours, a rather staggering decline over the past 13 years!

Author's Address:
6115 - 141 Street, Edmonton, Alberta T6H 4A6

Alberta Christmas Bird Counts - 1983 Addendum

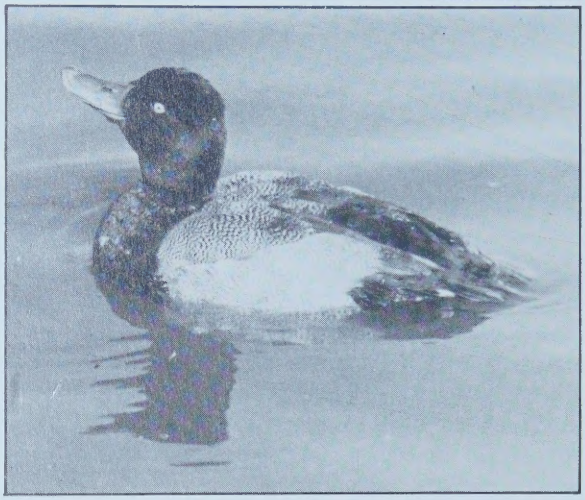
Calgary

December 18, 1983. Temp: -33°C to -19°C. Wind: S-SSE 0-4 km/hr. Ground cover: 13 cm snow. No. observers: 38 in 20 parties. Total Party-hours: 118.5; 96.5 on foot, 22 by car. Total Party-kilometers: 528; 168 on foot, 360 by car. No. species: 53.

Great Blue Heron 1, Canada Goose 51, Mallard 2510, Gadwall 1, Pintail 4, Green-winged Teal 4, American Wigeon 5, Lesser Scaup 2, Common Golden-eye 404, Barrow's Golden-eye 12, Bufflehead 2, Common Merganser 39, Goshawk 4, Cooper's Hawk 1, Golden-Eagle 1, Bald Eagle 11, Merlin 5, Ruffed Grouse 1, Sharp-tailed Grouse 1, Ring-necked Pheasant 19, Gray Partridge 33, Rock Dove 478, Great Horned Owl 16, Snowy Owl 1, Belted Kingfisher 1, Common Flicker 6, Hairy Woodpecker 12, Downy Woodpecker 41, Three-toed Woodpecker 3, Grey Jay 1, Blue Jay 2, Black-billed Magpie 589, Common Raven 90, Common Crow 2, Black-capped Chickadee 360, Boreal Chickadee 26, White-breasted Nuthatch 14, Red-breasted Nuthatch 6, Brown Creeper 9, American Dipper 3, Golden-crowned Kinglet 3, Bohemian Waxwing 3669, Northern Shrike 1, European Starling 67, House Sparrow 372, Evening Grosbeak, 199, Blackbird sp. 1, Pine Grosbeak 10, Common Redpoll 19, Crossbill sp. 14, Dark-eyed Junco 14, White-throated Sparrow 2, Snow Bunting 8.

Observers: Des Allen, Peter Allen, Merilyn Banting, John Bargman, Richard Clarke, Doug Collister, Murray Duclos, Barny Giles, Howard Giles, Louis Guillemette, Willis Hall, Ian Halladay (non-participating co-compiler), Cedric Hitchon, Kate Jones, Peter Keogh, David Lewis, Dave Matthews, Jean McCullough, Nannette MacKay, Garry MacKay, Rob Mitchell, Wally Platz, Jamey Podlubny, Ed Quist, Mike Rogers, Helen Rickstens, Barbara Sherrington, Peter Sherrington (co-compiler), Lorna Slater, Andrew Slater, Ena Spalding, Jack Steeves, Don Stiles, Bob Storms, Suzanne Visser, Al Wiseley, Ray Woods, Rob Woods.

Photo: Jim R. Salt



As usual the Calgary Christmas Bird Count recorded the greatest number of species of all Alberta localities, and included Lesser Scaup and a Great Blue Heron that missed its "flight" to warmer wintering quarters.

The Writings of Fred Schutz

Editors Note: This is a brief summary of some of Fred Schutz's written contributions over the years, supplied by Fred himself. Fred was the recipient of the ninth Loran L. Goulden Award.

My newspaper column, number 1,500, was published Sept. 25 in the Rimbey Record and Eckville Examiner under my byline, WEST OF THE BLINDMAN. The column was once carried by the Sylvan Lake News and the Innisfail Province. Over the years it has been picked up on an occasional basis by weekly papers in many parts of Alberta, and sometimes by the Edmonton Journal and the Calgary Herald. Last summer I wrote a column on Grande Cache and later recieved a letter from a lady there who had read it in the local paper. I have had letters from many corners of Alberta regarding something I had written — even from Saskatchewan, California, and New York.

I could not count the times my column was quoted on the CBC radio program, "Neighbourly News from the Prairies" — several times a year during the 1950s, '60s, and '70s.

Joe Clark, when he was Prime Minister, was one of my readers. I knew Joe when he was a reporter for the Edmonton Journal. We both spent a weekend at the first Goldeye Lake youth camp in the 1950s, he as a reporter, I as an invited guest. There was no well at Goldeye then, and he and I used to go in his car to Haven Creek for water for the cookhouse, just to make ourselves useful.

Alberta Liberal Leader Nick Taylor also reads my column, as does my M.P., Stan Schellenberger.

I once wrote six columns for a short-lived magazine called MONTHEND, published in Ponoka. That was in 1956. Later I wrote several articles for *Western Weekly*, now also defunct. Later still, in the 1970s, I wrote a column for the Ponoka County NEWS. It is no longer published. I also sold photographs and short items to the FARM AND RANCH REVIEW, a periodical that went under when postage rates went up. That was when many of my markets dried up. I got into *Macleans* twice with short anecdotes. I wrote a story on the Blindman River for an historical issue of the Lacombe Globe, and I have written numerous news stories, some of them feature articles for the Rimbey Record.

I have contributed to several other regional histories, notably "Tributaries of the Blindman", published in 1972, 1,002 pages, of which I contributed 105.

The Hog Pool was a livestock marketing co-op. My father was an early member.

My writing has also included preparing briefs for many environmental hearings over the years, and I have prepared talks which I have delivered to many organizations from Girl Guides to service clubs, to teachers' groups to eulogies at funerals. Many, many times I have gone into the schools to give talks to every grade, from one to twelve. I like the grade ones better; the grade twelves know too much and ask too many difficult questions.

I have also written a number of articles on rocks and rockhounds for FOSSIL TRAILS, the quarterly publication of the Alberta Federation of Rock Clubs.

Some of Fred's contributions to nature and history publications include the following:

Schutz, F. 1955. Identification of Bison Skull. The Bluejay 13(2): 191.

— 1962. Pas-Ka-Poo — An Early History of Rimbey and the Upper Blindman Valley. The Rimbey Record Ltd., Rimbey. 195 pp.

— 1975. The Bluffton Canyon. Alberta Nat. 5: 28-31.

— 1979. Owl hideaway discovered. Alberta Nat. 9(2): 111.

— 1980. The Hog Pool — A History of the Blindman Valley Co-operative Association Ltd. 60 pp.

— 1981. Kerry Wood of Red Deer. Alberta Nat., Special Issue No. 1. pp. 115-117.

— 1982a. Inuit Snow Words. Central Alberta Naturalist, No. 1, Winter, 1982.

— 1982b. Endangered Species. Central Alberta Naturalist, No. 2, Spring, 1982.

— 1982c. Odyssey Update. Central Alberta Naturalist, No. 2, Spring, 1982.

— 1982d. Editorial: The Antler Trade in Alberta. Alberta Nat. 12(2): 101.

— 1982e. Naturalists and Falling Trees. Central Alberta Naturalist, No. 4., Fall, 1982.

Line drawings by William Rowan.

NATURALISTS BOOKSHELF

Harvesting the Northern Wild

A Guide to Traditional and Contemporary Uses of Edible Forest Plants of the Northwest Territories

Marilyn Walker. Plant illustrations by Linda Fairfield. 1984. Outcrop, The Northern Publishers, Yellowknife. 224 pp. $12.95 paper.

This book is a real labour of love. Its well-crafted, diverse and attractive contents are obvious evidence of a careful and gentle simmering of ideas and inspirations over a long period of time. The final product of this evolution is a unique mix of subject matter which results in a book suitable for browsing, yet still serves as a practical reference manual on harvesting edible wilds.

Don't let the title fool you - this book will be of interest to a much wider audience than just those concerned with edible plants of the Northwest Territories. Information concerning the contemporary use of the plants is interwoven with historical, anthropological and ethnobotanical background; the result is that the reader is left with a far richer impression of the north than one would ever experience by reading an edible wilds texts which confined itself to just the plants. As well as including descriptions of the traditional natives' uses of the 52 plants covered in the book, Marilyn Walker has taken the unique step of including pertinent excerpts from the journals of early explorers, botanists, traders, and missionaries who mentioned these plants in their writing.

Yet, these features comprise only the "Field Guide - Edible Vascular Plants" section of the book. It is the other sections which firmly place this book in the "Must Read" category; the author goes far beyond what one would expect for an edible wilds book and does a pleasingly thorough job of presenting additional related information. Indeed, the book reveals surprise after surprise as one progresses through the pages.

The 224-page paperback starts off with a well-organized introduction, including sections on "The Virtues of Edible Wild Plants", how to use the book, and guidelines for harvesting wild plants. I was greatly pleased to discover a 2½ page section on "Conserving Wilderness Resources", which is a subject so often overlooked in books dealing with harvesting wilds. Conservation tips recur throughout the book. The introduction continues with a section on "The Northern Landscape" which outlines the biophysical setting of the north, and a section on Athapaskan Peoples, which briefly describes the background and history of each of the eight main Dene groups of the NWT. Both sections are embellished with diary excerpts from early white northerners. The 35-page introduction concludes with a brief description of the day-to-day settings in which these northern visitors and their native hosts lived.

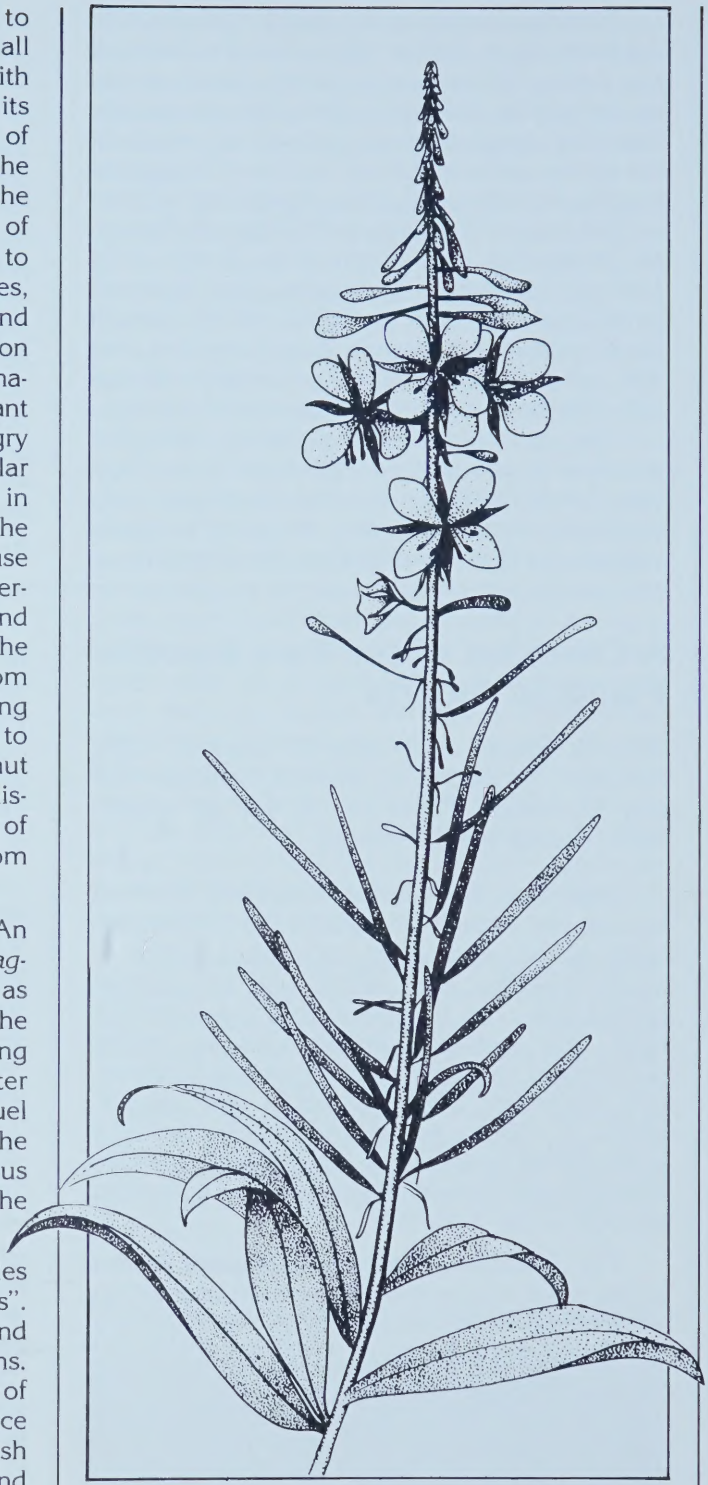
The fruits of bunchberry, Cornus canadensis, *were widely eaten by a number of native tribes, usually uncooked.*

Photo: Derek Johnson

Next comes the illustrated field guide to edible vascular plants. Though the plants are all NWT species, they are also found in Alberta with few exceptions. The entry for each plant gives its scientific name as well as the common name of the family and a fairly extensive listing of the species' common names. The remainder of the entry is neatly organized under the headings of How to Find (Habitat, Description) and How to Use (Usable Parts, Common Uses, Other Uses, and Cautions). Various gems of advice are found here which other similar books lack; advice on the timing and method of harvesting, information on potential hazards of collecting a plant (ranging from poisonous look-alikes, to hungry bears likely to be competing for a particular species, to plants likely to cause hay fever in susceptible individuals), suggestions for the most suitable preparations of the plant (for use as medicine, wines, tobacco substitutes, emergency nourishment, dyes, stuffings, etc.), and observations of the early adventurers. The information is pleasantly unpredictable from species to species and makes for interesting browsing - one learns everything from how to easily clean blueberries (roll then down a taut wool blanket held at a slant), to removing discoloration from your teeth (applying the juice of fresh strawberries), to making popcorn from yellow pond-lily seeds.

The surprises are not over yet, however. An additional section on lichen species and *Sphagnum* moss follows, laid out in the same format as the preceding section. Here we learn how the Franklin expedition dined on a not-so-appetizing dinner of "Iceland moss", how lichens' bitter taste can be removed by boiling, and how Samuel Hearne thickened his broths with rock tripe. The field guide unit ends with a section on poisonous plants, described in a similar fashion to the edible species.

Turning the next page, the reader stumbles upon the real triumph of this book: "Recipes". Teas, bannock, greens, herbs, "petals, buds, and roots", and berries all head up their own sections. Here is a marvelous and diverse collection of treats including "Caribou Filets in Brandy Sauce with Juniper Berries", "Wild Pizza", "Fish Baked in Clay with Wild Greens and Herbs", and "Orange-Cranberry Muffins Stuffed with Cream Cheese". The recipes are innovative and original, and not overly complex in spite of their gourmet appeal.



The inner part of the stem of young plants of fireweed, Epilobium augustifolium, *was eaten raw as a green vegetable by a number of Indian groups. (Line drawing by Gordon Barth.)*

Surprises continue to unfold right down to the back cover. Walker has included an interesting listing of her sources, both contemporary and otherwise, which frequently includes notable historical, biographical and personal details of the earlier authors. As well as lists of suggested reading and other references, Walker has included "A Nutritional Comparison of Common Domestic Vegetables and Fruits with Edible Wild Greens" in which we discover that fireweed, lamb's-quarters and mountain sorrel contain significantly more vitamin A and ascorbic acid that just about anything in our more traditional fare. The book concludes with a helpful index.

One is struck by the book's attractive appearance and layout, right down to the type face. Linda Fairfield's illustrations are not only artistically lovely but were obviously patiently crafted to aid in identification; the character of the plants comes across quite clearly. Archival photographs, engravings, and maps all add to the book's appearance.

Shortcomings of the book are few, given its size. We are mistakenly informed (in spite of an illustration to the contrary) that bunchberries have five floral leaves. A few empty spaces in the field guide section could have been filled with more information on the plants. Overall, though, this is a well-organized, original and unique presentation employing a very creative concept for a book on edible wilds. Unpretentious, it offers us a broad and sympathetic perspective on not only the plants, but also the northern land and its people. It's also one of those rare books which should appeal to just about anybody. Highly recommended.

Bob Longworth

A Checklist of the Rare Vascular Plants in Alberta

John G. Packer and Cheryl E. Bradley. 1984. Provincial Museum of Alberta, Natural History Occasional Paper No. 5. 112 pp. Paperback. Available at no charge.

Interest on the part of scientists and informed laymen has fostered the search for more knowledge of the species that occur in our environment, including their distribution and habitat preferences. The realization that many species have very restricted distributions or habitat preferences has resulted in a growing conservation movement. The checklist of rare vascular plants in Alberta by Packer and Bradley is a professional synthesis of the relevant available historical and current information and collection records on the subject.

The checklist by Packer and Bradley defines a rare plant as one that has a small population within the province and it may be restricted to a small geographical area or it may occur sparsely over a wide area. This definition is the one used by Argus and White who compiled a similar checklist of rare vascular plants in Alberta in 1978 under the auspices of the National Museums of Canada. The Packer and Bradley publication represents a significant improvement over the Argus and White checklist for the interested Albertan, due primarily to the inclusion of a crisp (although small) distribution map for each species, but also due to the current nature of the Packer and Bradley checklist which is more comprehensive than the Argus and White list, reflecting revised information, including some extensive botanical studies conducted in Alberta in the intervening six years.

No attempt has been made to indicate if a species is in immediate danger of extinction, or is in fact extinct, as information is still insufficient to make such statements. Although not intended as a phytogeographical treatment, the authors note that the mountains and foothills account for 55% of the species, the prairies 25%, and the boreal forest 20%. About 100 species are known from a single locality (usually a single collection), 75 are known from 2 localities and 175 are known from 3 or more.

Professional botanists and serious amateur naturalists will find this checklist to be a useful reference. The intended audience of the occasional paper series is interested specialists rather than as popular publications for general readers, however the use of the usual common name in addition to the scientific name for the 360 species included, makes the checklist of interest to many non-specialists. Such a publication should also serve as a good foundation for the development of legislation that will effectively protect the rare vascular plants in Alberta.

Ian G.W. Corns

Cranes of the World

Paul A. Johnsgard. 1983. Indiana University Press, Bloomington. 258 pp. $37.50 (U.S.).

Johnsgard has done it again. In the last 10 years, I understand he has published 13 of his 17 books. *Cranes of the World* is yet another of his "group" books in which a particular taxonomic order of birds is selected and discussed in an ecological and biological framework. This book with its quality colour photographs, ink drawings and easy to read text, will appeal to biologists, conservationists and bird lovers.

One might ask why another book on cranes when 11 years ago Lawrence H. Walkinshaw published his *Cranes of the World*? Johnsgard's reply is that:

"...the precarious state of all the crane species of the world, including no less than five endangered or vulnerable species and another of indeterminate status, according to the most recent assessment by the International Council for Bird Preservation, makes an up-to-date summary of the biology, distribution, and status of the Gruidae an important issue. Furthermore, Walkinshaw did not attempt to undertake comparative biological analyses, nor did he include range maps or recent population data for most species."

The book is divided into two main sections. In part one, Johnsgard deals with the comparative biology of the 14 or 15 species of cranes known to science (the number of species depends on whether you are a lumper or splitter). The eight topics discussed in this first portion of the book deal with taxonomy, evolution, behaviour, vocalizations, ecology, hybridization, conservation and crane mythology.

The second major section of the book consists of the species accounts. Johnsgard provides a wealth of crane life history information which has been gleaned from the literature. Each account is divided into specific subsections which is helpful in allowing the reader to compare one species with another. For each species, Johnsgard gives a list of alternative vernacular names followed by brief information on range, subspecies, measurements and weights. He then gives a description of the crane followed by identification clues. The meat of the account includes data on distribution and habitat, foods and foraging behaviour, migrations and movements, general biology, breeding biology, recruitment rates, population status, conservation and finally evolutionary relationships. Johnsgard has also included a short section on the origins of crane names as well as a key to the various species and subspecies. Over 400 references are listed, however this falls short of Walkinshaw's 1400+ citations.

The 23 colour photographs are of excellent quality and add life to the book, however some of the 24 black and white pictures have spots on them, suggesting poor quality printing. The distribution maps can be helpful in visualizing winter and breeding ranges, however, I found that the USSR-Asia maps were somewhat cluttered with rivers whose ink thickness was similar to land boundaries. Interestingly enough, the North American maps show no rivers, not even the Platte River - a major stopover for Sandhill Cranes. For those unfamiliar with Euro-Asian geography, it would have been more meaningful for Johnsgard to have identified localities and rivers on the individual maps instead of having a separate map for this purpose. In addition, map insets were not properly offset from maps and there were no arrows identifying which areas were being focused on. Also, the title for the Whooping Crane distribution map refers to two insets, one of Aransas National Wildlife Refuge and the others of Grays Lake National Wildlife Refuge when in fact the insets shown are those of Wood Buffalo National Park and Aransas National Wildlife Refuge.

The strength and value of this book lies in its comparative nature and update of crane literature. Johnsgard has pulled much of the crane data together from the literature and put some of it into tabular form allowing easy comparisons of biological parameters of cranes including breeding densities, clutch sizes and nest success. Crane biologists and ethologists will find this book a handy reference for comparative information.

J. Paul Goossen

Whooping Cranes foraging on their wintering area at Aransas, Texas.

Photo: Paul Goossen

Recent Publications on the Natural History of Alberta

Compiled by David M. Ealey and Martin K. McNicholl

Natural History

Cook, F. R., and D. Muir. 1984. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC): history and progress. *Can. Field-Nat.* 98: 63-70.

Fitzharris, T. 1983. The wild prairie: A natural history of the western plains. Toronto, Oxford University Press. 144 pp.

Hill, M. 1984. For purple mountain majesties. *Audubon* 86(6): 56-73. - Carl Rungius.

Geology

Desloges, J. R., and J. S. Gardner. 1984. Process and discharge estimation in ephemeral channels, Canadian Rocky Mountains. Can. J. Earth Sci. 21(9): 1050-1060.

Dickie, B. 1984. The breathing rocks of Wood Buffalo. *Nature Canada* 13(4): 41-42.

Everdingen, R. O. van. 1984. Dirty-water events at Rocky Mountain Hot Springs and their correlation with other short-lived phenomena. Can. J. Earth Sci. 21(9): 997-1007.

Rebollar, C. J., E. R. Kanasewich, and E. Nyland. 1984. Focal depths and source parameters of the Rocky Mountain House earthquake swarm from digital data at Edmonton. Can. J. Earth Sci. 21(10): 1105-1113.

Shetsen, I. 1984. Application of till pebble lithology to the differentiation of glacial lobes in southern Alberta. Can. J. Earth Sci. 21(8): 920-933.

Tsui, P.C. and D.M. Cruden. 1984. Deformation associated with gypsum karst in the Salt River Escarpment, northeastern Alberta. Can. J. Earth Sci. 21(8): 949-959.

Soils

Campbell, C.A., Y.W. Jame, and G. E. Winkleman. 1984. Mineralization rate constants and their use for estimating nitrogen mineralization in some Canadian prairie soils. Can. J. Soil Science 64(3): 333-344.

Water

Laycock, A.H. and F.B. Mackenzie. 1984. The increase in water yield with urbanization in the Canadian prairies. Can. Water Resources Journal 9(1): 83-90.

Sykes, G.N. 1984. Water use at Alberta gas ethylene. Can. Water Resources Journal 9(1): 27-45.

Paleontology

Fox, R.C. 1984. A primitive, "obtuse-angled" symmetrodont (Mammalia) from the Upper Cretaceous of Alberta, Canada. Can. J. Earth Sci. 21(10): 1204-1207.

Hickman, M., C.E. Schweger and T. Habgood. 1984. Lake Wabamun, Alta.: a paleoenvironmental study. Can. J. Botany 62(7): 1438-1465.

Non-vascular Plants

Redhead, S.A. 1984. Additional Agaricales on wetland Monocotyledoneae in Canada. Can. J. Bot. 62(9): 1844-1851.

Vascular Plants

Aiken, S.G. and L.P. Lefkovitch. 1984. The taxonomic value of using epidermal characteristics in the Canadian rough fescue complex *(Festuca altaica, F. campestris, F. hallii, "F. scabrella").* Can. J. Bot. 62(9): 1864-1870.

Hallworth, B. 1983. Botany highlights. *Calgary Field Nat. Newsletter* 5(4): 1.

Harms, V. L. 1983. *Mamillaria* vs. *Coryphantha. Blue Jay* 41: 230-232.

Pavlick, L.E. and J. Looman. 1984. Taxonomy and nomenclature of rough fescues, *Festuca altaica, F. campestris (F. scabrella* var. *major),* and *F. hallii,* in Canada and the adjacent part of United States. Can. J. Bot. 62(8): 1739-1749.

Speirs, D. C. 1983. There are no *Mamillaria* species in Canada. *Blue Jay* 41: 230.

Whitkus, R. and J.G. Packer. 1984. A contribution to the taxonomy of the *Carex macloviana* aggregate (Cyperaceae) in western Canada and Alaska. Can. J. Bot. 62(8): 1592-1607.

Trees

Wang, E.I.C. and M.M. Micko. 1984. Wood quality of white spruce from north central Alberta. Can. J. Forest Res. 14(2): 181-185.

Invertebrates

Barr, W.B. 1984. Prolegs and attachment of *Simulium vittatum* (sibling IS-7) (Diptera: Simulidae) larvae. Can. J. Zool. 62(7): 1355-1362.

Boag, D.A. 1983. The response of terrestrial snails to the presence of ungulate feces, a source of nematode larvae (Megastrongyloidea: Protostrongylidae). *Can. J. Zool.* 61: 1852-1856.

Boag, D.A., C. Thomson, and J. Van Es. 1984. Vertical distribution of young pond snails (Basommatophora: Pulmonata): implications for survival. Can. J. Zool. 62: 1485-1490.

Brittain, J.E. and R.A. Mutch. 1984. The effect of water temperature on the egg incubation period of *Mesocapnia oenone* (Plecoptera) from the Canadian Rocky Mountains. Can. Ent. 116(4): 549-554.

Campbell, J. M. 1984. A review of the North American species of the Omaliine genera *Porrhodites* Kraatz and *Orochares* Kraatz (Coleoptera: Staphylinidae). Can. Ent. 116(9): 1227-1249.

Cerezke, H.F., J.H. Borden, and T.N. Trott. 1984. Field tests with semiochemicals for the mountain pine beetle in the Cypress Hills, Alberta. Can. Forestry Service Research Notes 4(2): 16-18. - semiochemicals are behaviour-modifying chemi-

cals, here referring to chemicals that cause pine beetles to aggregate for subsequent control efforts.
Cheeseman, M. T., and G. Pritchard. 1984. Spatial organization of digestive processes in an adult carabid beetle, *Scaphinotus marginatus* (Coleoptera: Carabidae). *Can. J. Zool.* 62: 1200-1203.
Holmberg, R.G. and J.M. Hardman. 1984. Relating feeding rates to sex and size in six species of grasshoppers (Orthoptera: Acrididae). Can. Ent. 116(4): 597-606.
Holmes, N.D. 1984. The effect of light on the resistance of hard red spring wheats to the wheat stem sawfly, *Cephus cinctus* (Hymenoptera: Cephidae). Can. Ent. 116(5): 677-684.
Kevan, K.D. 1983. A preliminary survey of known and potentially Canadian and Alaskan centipedes (Chilopoda). *Can. J. Zool.* 61: 2938-2955.
McElhane, M.J., and R.W. Davies. 1983. The influence of rock surface area on the microdistribution and sampling of attached riffle-dwelling Trichoptera in Hartley Creek, Alberta. *Can. J. Zool.* 61: 2300-2304.
Mutch, R.A., and G. Pritchard. 1982. The importance of sampling and sorting techniques in the elucidation of the life cycle of *Zapoda columbiana* (Plecoptera: Nemouridae). *Can. J. Zool.* 60: 3394-3399.
Mutch, R.A., and G. Pritchard. 1984. The life history *Zapoda columbiana* (Plecoptera: Nemouridae) in a Rocky Mountain stream. *Can. J. Zool.* 62: 1273-1281.
Mutch, R.A., and G. Pritchard. 1984. The life history of *Philocasca alba* (Trichoptera: Limnephelidae) in a Rocky Mountain stream. *Can. J. Zool.* 62: 1282-1288.
Pritchard, G., and C. Mutch. 1984. Intermolt cuticle and muscle growth in *Tipula* larvae (Insecta, Diptera). *Can. J. Zool.* 62: 1351-1354.
Rasmussen, J. 1982. The effect of thermal effluent, before and after macrophyte harvesting, on standing crop and species composition of benthic macroinvertebrate communities in Lake Wabamun, Alberta. *Can. J. Zool.* 60:3196-3205.
Rasmussen, J.B. 1984. Comparison of gut contents and assimilation efficiency of fourth instar larvae of two coexisting chironomids, *Chironomus riparius* Meigen and *Glyptotendipes paripes* Edwards. *Can. J. Zool.* 62: 1022-1026.
Richardson, J.S. 1984. Prey selection and distribution of a predaceous, net-spinning caddisfly, *Neureclipsis bimaculata* (Polycentropodidae). Can. J. Zool. 62(8): 1561-1565.
Richardson, J.S., and H.F. Clifford. 1983. Life history and microdistribution of *Neuriclipsis bimaculata* (Trichoptera: Polycentropodidae) in a lake outflow stream of Alberta, Canada. *Can. J. Zool.* 61: 2434-2445.
Smetana, A. 1984. Revision of the subfamily Sphaeridiinae of America north of Mexico (Coleoptera: Hydrophilidae). Supplementum 2. Can. Ent. 116 (4): 555-566.
Soluk, D.A. and H.F. Clifford. 1984. Life history and abundance of the predaceous psammophilous mayfly *Pseudiron centralis* McDunnough Ephemeroptera: Heptageniidae). Can. J. Zool. 62(8): 1534-1539.

Parasites

Cone, D.K., M. Beverly-Burton, M. Wiles, and T.E. McDonald. 1983. The taxonomy of *Gyrodactylus* (Monogenea) parasitizing certain salmonid fishes of North America, with a description of *Gyrodactylus nerkae* n. sp. *Can. J. Zool.* 61: 2587-2597.
Pybus, M.J. and W.M. Samuel. 1984. Attempts to find a laboratory host for *Parelaphostrongylus andersoni* and *Parelaphostrongylus odocoilei* (Nematoda: Protostrongylidae). Can. J. Zool. 62(6): 1181-1184.

Birds

Anonymous. 1983. Field sightings. Edmonton Bird Club Newsletter. March 1983: 2-3. September 1983: 3. October 1983: 2. November 1983: 3.
Anonymous. 1983. City-dwelling Peregrines. *Peregrine Fund Newsletter* No. 11: 5-6. - includes recent nestings in Calgary & Edmonton.
Anonymous. 1984. Field sightings. Edmonton Bird Club Newsletter. February 1984: 2. March 1984: 2.
Anonymous. 1984. Report on the 1984 bird species count. *Calgary Field Nat.* 6(1): 2-3.
Anonymous. 1984. Whooping Crane sighting. *Edmonton Bird Club Minutes* April 1984: 2.
Anonymous. 1984. Bird sightings April 1984. 2 pp. accompanying *Edmonton Bird Club Minutes* April 1984.
Anonymous. 1984. Summer bird sightings 1984. 1 p. attached to *Edmonton Bird Club Minutes* Sept. 1984.
Bechard, M.J., and C.S. Houston. 1984. Probable identity of purported Rough-legged Hawk nests in western U.S. and Canada. *Condor* 86:348-352.
Bennett, G. 1983. Great Canadian round-up - fall brand. *Birdfinding in Canada* 3(6): 16-19.
Bennett, G. 1984. *Xema sabini* - tough birds. *Birdfinding in Canada* 4(1): 1-3.
Bennett, G. 1984. Stragglers, aliens, rarities & strays - 1983. *Birdfinding in Canada* 4(1): 5-6.
Bennett, G. 1984. Birding at Brooks, Alta. *Birdfinding in Canada* 4(5): 4-5.
Boag, D.A., S.G. Reebs, and M.A. Schroeder. 1984. Egg loss among Spruce Grouse inhabiting lodgepole pine forests. *Can. J. Zool.* 62:1034-1037.
Boyd, H. 1983. Intensive regulation of duck hunting in North America; its purpose and achievements. *Can. Wildl. Serv. Occas. Pap.* No. 50.
Boyd, H., and F.G. Cooch. 1983. Duck numbers and duck hunting in southern Alberta, 1975-82, and their implications for waterfowl management. *Can. Wildl. Serv. Progress Notes* No. 140. 24 pp.
Collister, D. 1983. Bird highlights. Calgary, September 1983. *Calgary Field Nat. Newsletter* 5(4): 1.
Collister, D. 1983. Bird highlights. Calgary, October 1983. *Calgary Field Nat. Newsletter* 5(4): 2.
Collister, D., J. Steeves, D. Elphinstone, S. Johnston, A. Slater, and J. Thompson (compilers). 1984. The Birds of the Calgary Area, 1982. Report published by Calgary Field Naturalists' Society, Calgary. 60 pp.
Cox, M., and G.R.A. Ebel. 1983. Birding in Edmonton's Capital City Park. Birding around Edmonton Ser. No. 9. Edmonton Bird Club. 4 pp.

Cox, M., and G.R.A. Ebel. 1983. Birding in the Whitford Lake area. Birding Around Edmonton Ser. No. 10. Edmonton Bird Club. 4 pp.
Cuthiell, D. 1984. Spring 1984 bird report. *Edmonton Nat.* 12(2): 3-5.
Duncan, D.C. 1984. Egg retrieval by Canada Geese: apparent interspecific retrieval and tests of egg displacement. *Auk* 101: 886-887.
Haines, B. 1983. Foster parenting saved these bluebirds. *Sialia* 5: 126.
Harris, W.C. 1984. The autumn migration. August 1 - November 30, 1983. Prairie provinces region. *Amer. Birds* 38: 214-216.
Kowalski, M.P. 1983. Identifying Mourning and MacGillivray's Warblers: geographic variation in the MacGillivray's Warbler as a source of error. *North Amer. Bird Bander* 8: 56-57.
Madson, J. 1984. A lot of trouble and a few triumphs for North American waterfowl. *Natl. Geogr.* 166: 562-599.
Oliphant, M. 1983. Canada-west regional report. *Eyas* 6(2): 17.
Rogers, T.H. 1984. The autumn migration. August 1 - November 30, 1983. Northern Rocky Mountain - Intermountain region. *Amer. Birds* 38: 224-227.
Sampson, R. 1984. Red-breasted Merganser on North Saskatchewan River. *Edmonton Nat.* 12(2): 6.
Sampson, R. 1984. Black-billed Magpie nest. *Edmonton Nat.* 12(2): 7.
Shipley, M. 1984. Owls hooting on Saskatchewan Drive. *Edmonton Nat.* 12(2): 7.
Soothill, E., and R. Soothill, 1982. Wading birds of the World. Blandford Press, Poole, Dorset, U.K. 334 pp. - includes some original observations from Alta., notably large clutches (shared nests?) of Amer. Avocets, Chain Lakes, 1979.
Termaat, B.M., and J.P. Ryder, 1984. Differences in skeletal characters between the disjunct eastern and western populations of Ring-billed Gulls *(Larus delawarensis). Can. J. Zool.* 62: 1067-1074.
Thompson, R.W. 1984. albino magpie in west Edmonton. *Edmonton Nat.* 12(2): 8.
Vermeer, K., and L. Rankin. 1984. Population trends in nesting Double-crested and Pelagic Cormorants in Canada. *Murrelet* 65: 1-9.
Young, D.A., and D.A. Boag. 1982. Changes in physical condition of male Mallards *(Anas platyrhynchos)* during molt. *Can. J. Zool.* 60: 3220-3226.

Mammals

Geist, V. 1983. Bighorn Sheep herd threatened by winter olympics. *Bull. Can. Soc. Zool.* 14(4): 13-14.
Koh, H.S., and R.L. Peterson. 1983. Systematic studies of Deer Mice *Peromyscus maniculatus* Wagner (Cricetidae, Rodentia): analysis of age and secondary sexual variation in morphometric characters. *Can. J. Zool.* 61: 2618-2628.

Parks and Natural Areas

Johnson, J.D. 1984. Beaverhill Lake National Nature Viewpoint. *Edmonton Nat.* 12(2): 8-9.

Development/Environmental Problems

Dale, N.C. 1983. Development threatens Slave River. *Man. Nat. Soc. Bull.* 7(2): 3-4.
Nation, R. 1983. Lake Louise and the 1988 Olympics. *Natl. & Prov. Parks Assoc. B.C. Chapt. Newsletter* Oct. 1983: 5-6.
Pawledge, F. 1984. Saving an Eden called Canada is a task as big as the land. *Audubon* 86(6): 74-101.

Wildlife Management

Cooch, F.G. 1984. The kill of ducks and geese in Canada by non-resident hunters. *Can. Wildl. Serv. Progress Notes* No. 147. 15 pp.

Porcupine at an unguarded moment.

Photo: Jim R. Salt

FEDERATION OF ALBERTA NATURALISTS

BOARD OF DIRECTORS

Past President:
Maryhelen Posey, 5127 Brisbois Dr. NW, Calgary AB T2M 2G3

President:
David M. Ealey, 3903 - 105 St., Edmonton, AB T6J 2K7

Vice-President:
Pat Clayton, 8671 - 76 St., Edmonton, AB T6C 2K1

Recording Secretary:
Margot Hervieux, 102-8509 - 106A St., Edmonton, AB T6E 4J8

Treasurer:
Fred Coffey, 11150 - 52 St., Edmonton, AB T3W 3H7

Membership Secretary:
Eileen Coffey, 11150 - 52 St., Edmonton, AB T3W 3H7

Appointed Directors:
Derek Johnson, Lloyd Lohr, John Powell, Pat Clayton.

Elected Directors:
M. Posey, H. Gardner (Alberta Speleological Society)
A. Wiseley, M. McIvor (Bow Valley Naturalists)
M. Lohr, W. Hewlett (Buffalo Lake Naturalists)
K. Jones, D. Stiles (Calgary Field Naturalists' Society)
D. Ealey, M. Hervieux (Edmonton Bird Club)
W. Jackson, F. Coffey (Edmonton Natural History Club)
M. O'Shea, K. Godwin (Lethbridge Naturalists' Society)
F. Schutz, M. Cunningham (Red Deer River Naturalists)

Patron:
Hon. Dr. J.W. Grant MacEwan

Honorary Members:
Dr. Kerry Wood
Professor W. Ray Salt
Robert Lister

CORPORATE MEMBER CLUBS

Alberta Speleological Society,
2025 - 22 Ave., NW, Calgary AB T2M 1S1

Bow Valley Naturalists, Box 1693, Banff, AB T0L 0C0

Buffalo Lake Naturalists, Box 1414, Stettler, AB T0C 2L0

Calgary Field Naturalists' Society, Box 981, Calgary, AB T2P 2K4

Edmonton Bird Club, Box 4441, Edmonton, AB T6E 4T5

Edmonton Natural History Club, Box 1582, Edmonton, AB T5J 2N9

Lethbridge Naturalists' Society, Box 1691, Lethbridge, AB T1J 4K4

Red Deer River Naturalists, Box 785, Red Deer, AB T4N 5H2

B28099

Postage paid at
Edmonton, Alberta
under second class mail
registration no. 3604

If undeliverable return to
Federation of Alberta Naturalists
Box 1472 Edmonton, Alberta,
Canada T5J 2N5

Jim R. Salt, CONTRIB.
8731-117 St.
Edmonton, Alberta
T6G 1R6